

State Primacy Crosswalk

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
GENERAL REQUIREMENTS				
PART 124--PROCEDURES FOR DECISION MAKING				
SUBPART A--GENERAL PROGRAM REQUIREMENTS				
40 CFR §124.10 Public notice of permit actions and public comment period.				
Methods (applicable to State programs, see 40 CFR 123.25 (NPDES), 145.11 (UIC), 233.23 (404), and 271.14 (RCRA)). Public notice of activities described in paragraph (a)(1) of this section shall be given by the following methods:	40 CFR §124.10(c)	1. On or before the date a permit application is filed with the commission. The commission shall hold a public hearing before issuing a storage facility permit. At least forty-five days prior to the hearing, the applicant shall give notice of the hearing to the following: notice that it has filed the application.	43-05-01-08. <u>STORAGE FACILITY PERMIT HEARING</u> AMALGAMATION OF SUBSURFACE RIGHTS TO OPERATE GEOLOGICAL STORAGE UNIT. Subsection 1; pg. 19	40 CFR 124.10 (b)(1) – Director must provide for at least 30 days of public comment on a draft permit *Need to allow for written public comment on draft permits.
For Class VI injection well UIC permits, mailing or emailing a notice to State and local oil and gas regulatory agencies and State agencies regulating mineral exploration and recovery, the Director of the Public Water Supply Supervision program in the State, and all agencies that oversee injection wells in the State.	40 CFR §124.10(c)(1)(xi)	Before issuing a permit, the commission shall consult the state department of health.	NDCC 38-22-07. Permit consultation. First sentence; pg. 43	Notifying Indian Tribes? Question: Is the Public Water Supply Supervision program a part of the ND DOH? Question: How will the ND Geologic Survey, which is part of the ND Industrial Commission, be notified of Class VI permits? This can be included in the program description. Question: Are there any other state or local oil & gas regulatory agencies?

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PART 144--UNDERGROUND INJECTION CONTROL PROGRAM				
SUBPART A--GENERAL PROVISIONS				
40 CFR §144.1 Purpose and scope of Part 144.				
Subpart H of part 146 sets forth requirements for owners or operators of Class VI injection wells.	40 CFR §144.1(f)(1)(viii)	This chapter governs the geologic storage of carbon dioxide.	43-05-01-02. SCOPE OF CHAPTER. First sentence; pg. 7	
Scope of the permit or rule requirement. The UIC permit program regulates underground injection by six classes of wells (see definition of “well injection,” §144.3). The six classes of wells are set forth in §144.6. All owners or operators of these injection wells must be authorized either by permit or rule by the Director. In carrying out the mandate of the SDWA, this subpart provides that no injection shall be authorized by permit or rule if it results in the movement of fluid containing any contaminant into underground sources of drinking water (USDWs –see §144.3 for definition), if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 141 or may adversely affect the health of persons (§144.12). Existing Class IV wells which inject hazardous waste directly into an underground source of drinking water are to be eliminated over a period of six months and new such Class IV wells are to be prohibited (§144.13). For Class V wells, if remedial action appears necessary, a permit may be required (§144.25) or the Director must require remedial action or closure by order (§144.6(c)). During UIC program development, the Director may identify aquifers and portions of aquifers which are actual or	40 CFR §144.1(g)	<p>1. Following receipt of a storage facility permit, the storage operator shall submit applications obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.</p> <p>Underground injection of carbon dioxide for geologic storage that causes or allows movement of fluid into an underground source of drinking water is prohibited, unless the underground source of drinking water is an exempted aquifer under section 43-02-05-03.</p> <p>2. The commission shall identify (by narrative description, illustrations, maps, or other means) and describe in geographic and geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all aquifers or parts of aquifers that the commission proposes to designate as exempted aquifers using the criteria in section 43-02-05-03. No designation of an exempted aquifer submitted as part of the underground injection control program is final until approved by the United States Environmental Protection Agency Administrator as part of the underground injection control program.</p> <p>43-05-01-02.4, Subsection 1 (added during crosswalk review): 1. The commission may identify (by narrative description, illustrations, maps, or other means) and shall</p>	<p>43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 1; pg. 20</p> <p>43-05-01-02.2. INJECTION INTO UNDERGROUND SOURCE OF DRINKING WATER PROHIBITED. Paragraph; pg. 7-8</p> <p>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS. Subsection 2; pg. 8-9</p>	<p>Delete language, “unless the underground source of drinking water is an exempted aquifer under section 43-02-05-03. (Highlighted in red.)</p> <p>Either in the program description or in the ND regulations, a person within in the Commission needs to be identified as the “Director.” (Highlighted in Red.)</p>

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<p>potential sources of drinking water. This will provide an aid to the Director in carrying out his or her duty to protect all USDWs. An aquifer is a USDW if it fits the definition under §144.3, even if it has not been “identified.” The Director may also designate “exempted aquifers” using the criteria in 40 CFR 146.4 of this chapter. Such aquifers are those which would otherwise qualify as “underground sources of drinking water” to be protected, but which have no real potential to be used as drinking water sources. Therefore, they are not USDWs. No aquifer is an exempted aquifer until it has been affirmatively designated under the procedures at §144.7. Aquifers which do not fit the definition of “underground source of drinking water” are not “exempted aquifers.” They are simply not subject to the special protection afforded USDWs. During initial Class VI program development, the Director shall not expand the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for Class VI injection wells and EPA shall not approve a program that applies for aquifer exemption expansions of Class II-Class VI exemptions as part of the program description. All Class II to Class VI aquifer exemption expansions previously issued by EPA must be incorporated into the Class VI program descriptions pursuant to requirements at §145.23(f)(9).***</p>		<p><u>implement these rules to protect as underground sources of drinking water, all aquifers and parts of aquifers that meet the definition of “underground source of drinking water.” Even if an aquifer has not been specifically identified by the commission, it is an underground source of drinking water if it meets the definition of “underground source of drinking water.” Other than Environmental Protection Agency approved aquifer exemption expansions, new aquifer exemptions shall not be issued for injection wells.</u></p>		
40 CFR §144.3 Definitions.				
<p><i>Geologic sequestration</i> means the long-term containment of a gaseous, liquid, or supercritical carbon dioxide stream in subsurface geologic formations. This term does not apply to carbon</p>	<p>40 CFR §144.3</p>	<p>11. “Geologic sequestration” means the <u>geologic storage of a gaseous, liquid, or supercritical carbon dioxide stream in a storage reservoir</u>. This term does not apply to carbon dioxide capture or transport.</p>	<p>43-05-01-01. DEFINITIONS. Subsection 11; pg. 4 NDCC 38-22-02. Definitions.</p>	<p>None of the definitions included address the depth requirement.</p> <p>Add language that addresses the depth</p>

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dioxide capture or transport.***		<p>3. "Geologic storage" means the permanent or short-term underground storage of carbon dioxide in a storage reservoir.</p> <p>NDCC 38-22-02, Subsection 6 (added during crosswalk review): 6. "Reservoir" means a subsurface sedimentary stratum, formation, aquifer, cavity, or void, whether natural or artificially created, including oil and gas reservoirs, saline formations, and coal seams suitable for or capable of being made suitable for injecting and storing carbon dioxide.</p> <p>NDCC 38-22-02, Subsection 9 (added during crosswalk review): 9. "Storage reservoir" means a reservoir proposed, authorized, or used for storing carbon dioxide.</p>	Subsection 3; pg. 41	requirement: "below the lowermost formation containing a USDW"
40 CFR §144.6 Classification of wells.				
<i>Class V.</i> Injection wells not included in Class I, II, III, IV, or VI. Specific types of Class V injection wells are described in §144.81.	40 CFR §144.6(e)		N/A	Okay.
<i>Class VI.</i> Wells that are not experimental in nature that are used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at §146.95 of this chapter; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to §§146.4 of this chapter and 144.7(d).	40 CFR §144.6(f)	<p>13.8. "Injection well" means a <u>non-experimental</u> well used to inject carbon dioxide into or withdraw carbon dioxide from a reservoir.</p> <p>6. "Reservoir" means a subsurface sedimentary stratum, formation, aquifer, cavity, or void, whether natural or artificially created, including oil and gas reservoirs, saline formations, and coal seams suitable for or capable of being made suitable for injecting and storing carbon dioxide.</p>	<p>43-05-01-01. DEFINITIONS.</p> <p>Subsection 13; pg. 5</p> <p>NDCC 38-22-02. Definitions.</p> <p>Subsection 6; pg. 41</p>	Add language that addresses the depth requirement: "below the lowermost formation containing a USDW"

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40 CFR §144.7 Identification of underground sources of drinking water and exempted aquifers.				
The Director may identify (by narrative description, illustrations, maps, or other means) and shall protect as underground sources of drinking water, all aquifers and parts of aquifers which meet the definition of “underground source of drinking water” in §144.3, except to the extent there is an applicable aquifer exemption under paragraph (b) of this section or an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration under paragraph (d) of this section. Other than EPA approved aquifer exemption expansions that meet the criteria set forth in §146.4(d) of this chapter, new aquifer exemptions shall not be issued for Class VI injection wells. Even if an aquifer has not been specifically identified by the Director, it is an underground source of drinking water if it meets the definition in §144.3.	40 CFR §144.7(a)	<u>1. The commission may identify (by narrative description, illustrations, maps, or other means) and shall implement these rules to protect as underground sources of drinking water, all aquifers and parts of aquifers that meet the definition of “underground source of drinking water.” Even if an aquifer has not been specifically identified by the commission, it is an underground source of drinking water if it meets the definition of “underground source of drinking water.” Other than Environmental Protection Agency approved aquifer exemption expansions, new aquifer exemptions shall not be issued for injection wells.</u>	<u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u> Subsection 1; pg. 8	Add reference to 40 CFR 146.4(d) (Highlighted in red.)
The Director may identify (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) which are clear and definite, all aquifers or parts thereof which the Director proposes to designate as exempted aquifers using the criteria in §146.4 of this chapter.	40 CFR §144.7(b)(1)	<u>2. The commission shall identify (by narrative description, illustrations, maps, or other means) and describe in geographic and geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all aquifers or parts of aquifers that the commission proposes to designate as exempted aquifers using the criteria in section 43-02-05-03.</u>	<u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u> Subsection 2, first sentence; pg. 8-9	Okay.
No designation of an exempted aquifer submitted as part of a UIC program shall be final until approved by the Administrator as part of a UIC program. No designation of an expansion to the areal extent of a Class II enhanced oil recovery or enhanced gas	40 CFR §144.7(b)(2)	<u>No designation of an exempted aquifer submitted as part of the underground injection control program is final until approved by the United States Environmental Protection Agency Administrator as part of the underground injection control program.</u>	<u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u>	Okay.

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recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration shall be final until approved by the Administrator as a revision to the applicable Federal UIC program under part 147 or as a substantial revision of an approved State UIC program in accordance with §145.32 of this chapter. ***		<u>Such applications are considered a revision to the applicable federal underground injection control program or a substantial program revision to an approved state underground injection control program and are not final until approved by the United States Environmental Protection Agency.</u>	Subsection 2, second sentence; pg. 9 <u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u> Subsection 3, second sentence; pg. 9	
<i>Expansion to the Areal Extent of Existing Class II Aquifer Exemptions for Class VI Wells.</i> Owners or operators of Class II enhanced oil recovery or enhanced gas recovery wells may request that the Director approve an expansion to the areal extent of an aquifer exemption already in place for a Class II enhanced oil recovery or enhanced gas recovery well for the exclusive purpose of Class VI injection for geologic sequestration. Such requests must be treated as a revision to the applicable Federal UIC program under part 147 or as a substantial program revision to an approved State UIC program under §145.32 of this chapter and will not be final until approved by EPA.	40 CFR §144.7(d)	<u>3. A storage operator of enhanced oil or gas recovery wells may apply to the commission for approval to expand the areal extent of an aquifer exemption already in place for a enhanced oil or gas recovery well for the exclusive purpose of carbon dioxide injection for geologic sequestration. Such applications are considered a revision to the applicable federal underground injection control program or a substantial program revision to an approved state underground injection control program and are not final until approved by the United States Environmental Protection Agency.</u>	<u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u> Subsection 3; pg. 9	Okay.
The owner or operator of a Class II enhanced oil recovery or enhanced gas recovery well that requests an expansion of the areal extent of an existing aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration must define (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all aquifers or parts thereof that are requested to be designated as	40 CFR §144.7(d)(1)	<u>a. A storage operator's application must define (by narrative description, illustrations, maps, or other means) and describe in geographic or geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all aquifers or parts thereof that are requested to be designated as exempted under section 43-02-05-03.</u>	<u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u> Subsection 3 a; pg. 9	Okay.

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exempted using the criteria in §146.4 of this chapter.				
In evaluating a request to expand the areal extent of an aquifer exemption of a Class II enhanced oil recovery or enhanced gas recovery well for the purpose of Class VI injection, the Director must determine that the request meets the criteria for exemptions in §146.4. In making the determination, the Director shall consider:	40 CFR §144.7(d)(2)	<u>b. In evaluating an application the commission shall determine that it meets the criteria for exemptions in section 43-02-05-03. In making the determination, the commission shall consider:</u>	<u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u> Subsection 3 b; pg. 9	Okay.
Current and potential future use of the USDWs to be exempted as drinking water resources;	40 CFR §144.7(d)(2)(i)	<u>(1) Current and potential future use of the underground sources of drinking water to be exempted as drinking water resources;</u>	<u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u> Subsection 3 b (1); pg. 9	Okay.
The predicted extent of the injected carbon dioxide plume, and any mobilized fluids that may result in degradation of water quality, over the lifetime of the GS project, as informed by computational modeling performed pursuant to §146.84(c)(1), in order to ensure that the proposed injection operation will not at any time endanger USDWs including non-exempted portions of the injection formation;	40 CFR §144.7(d)(2)(ii)	<u>(2) The predicted extent of the injected carbon dioxide plume, and any mobilized fluids that may result in degradation of water quality, over the lifetime of the geologic sequestration project, as informed by computational modeling performed pursuant to subdivision a of subsection 2 of section 43-05-01-05.1, in order to ensure that the proposed injection operation will not at any time endanger underground sources of drinking water including non-exempted portions of the injection formation;</u>	<u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u> Subsection 3 b (2); pg. 9	Okay.
Whether the areal extent of the expanded aquifer exemption is of sufficient size to account for any possible revisions to the computational model during reevaluation of the area of review, pursuant to §146.84(e); and	40 CFR §144.7(d)(2)(iii)	<u>(3) Whether the areal extent of the expanded aquifer exemption is sufficient to account for any possible revisions to the computational model during reevaluation of the area of review; and</u>	<u>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</u> Subsection 3 b (3); pg. 9	Add reference to 40 CFR 146.84(e).

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Any information submitted to support a waiver request made by the owner or operator under §146.95, if appropriate.	40 CFR §144.7(d)(2)(iv)	(4) Information submitted to support a waiver request made by the applicant under section 43-05-01-11.6, if appropriate.	43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS. Subsection 3 b (4); pg. 9	Okay.
40 CFR §144.8 Noncompliance and program reporting by the Director.				
All Class VI program reports shall be consistent with reporting requirements set forth in §146.91 of this chapter.	40 CFR §144.8(b)(2)(iii)	1. The storage operator shall file with the commission all reports, submittals, notifications, and any other information that the commission requires. 3. The storage operator shall submit all required reports, submittals, and notifications under chapter 43-05-01 to the United States Environmental Protection Agency in an electronic format approved by that agency.	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 1 and 3; pg. 47	Okay.
SUBPART B--GENERAL PROGRAM REQUIREMENTS				
40 CFR §144.12 Prohibition of movement of fluid into underground sources of drinking water.				
For Class I, II, III, and VI wells, if any water quality monitoring of an underground source of drinking water indicates the movement of any contaminant into the underground source of drinking water, except as authorized under part 146, the Director shall prescribe such additional requirements for construction, corrective action, operation, monitoring, or reporting (including closure of the injection well) as are necessary to prevent such movement.***	40 CFR §144.12(b)	Underground injection of carbon dioxide for geologic storage that causes or allows movement of fluid into an underground source of drinking water is prohibited, unless the underground source of drinking water is an exempted aquifer under section 43-02-05-03. The storage operator shall ensure that all injection wells are constructed and completed to prevent movement of the carbon dioxide stream or fluids into underground sources of drinking water or outside the storage reservoir. 2. If the storage operator obtains evidence that the injected carbon dioxide stream and associated pressure front may endanger an underground source of drinking water, the storage operator shall:	43-05-01-02.2. INJECTION INTO UNDERGROUND SOURCE OF DRINKING WATER PROHIBITED. Paragraph; pg. 7-8 43-05-01-11. INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS. Subsection 1, first sentence; pg. 29 43-05-01-13. STORAGE	Delete the highlighted text in Red. These are requirements for the Commission not the storage operator. Add language that requires the Commission to prescribe such additional requirements...

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		<u>a. Immediately cease injection;</u> <u>b. Take all steps reasonably necessary to identify and characterize any release;</u> <u>c. Notify the commission within 24 hours; and</u> <u>d. Implement the emergency and remedial response plan approved by the commission.</u> <u>3. The commission may allow the operator to resume injection prior to remediation if the storage operator demonstrates that the injection operation will not endanger underground sources of drinking water.</u>	<u>FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS.</u> Subsection 2 through 3; pg. 45	
40 CFR §144.15 Prohibition of non-experimental Class V wells for geologic sequestration.				
The construction, operation or maintenance of any non-experimental Class V geologic sequestration well is prohibited.	40 CFR §144.15		N/A	Okay.
40 CFR §144.18 Requirements for Class VI wells.				
Owners or operators of Class VI wells must obtain a permit. Class VI wells cannot be authorized by rule to inject carbon dioxide.	40 CFR §144.18	<u>1. Following receipt of a storage facility permit, the storage operator shall submit applications obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 1; pg. 20	Okay.
40 CFR §144.19 Transitioning from Class II to Class VI.				
Owners or operators that are injecting carbon dioxide for the primary purpose of long- term storage into an oil and gas reservoir must apply for and obtain a Class VI geologic sequestration permit when there is an increased risk to USDWs compared to Class II operations. In determining if there is an increased risk to USDWs, the owner or operator must consider the factors specified in §144.19(b).	40 CFR §144.19(a)	<u>A storage operator injecting carbon dioxide for the primary purpose of geologic sequestration into an oil and gas reservoir shall apply for and obtain storage facility and injection well permits when there is an increased risk to underground sources of drinking water compared to enhanced oil or gas recovery operations. In determining if there is an increased risk to underground sources of drinking water, the commission shall consider the following</u>	<u>43-05-01-02.3. TRANSITIONING FROM ENHANCED OIL OR GAS RECOVERY TO GEOLOGIC SEQUESTRATION.</u> First paragraph; pg. 8	Okay.

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		<u>factors:</u>		
The Director shall determine when there is an increased risk to USDWs compared to Class II operations and a Class VI permit is required. In order to make this determination the Director must consider the following:	40 CFR §144.19(b)	<u>In determining if there is an increased risk to underground sources of drinking water, the commission shall consider the following factors:</u>	43-05-01-02.3. <u>TRANSITIONING FROM ENHANCED OIL OR GAS RECOVERY TO GEOLOGIC SEQUESTRATION.</u> First paragraph second sentence; pg. 8	Okay.
Increase in reservoir pressure within the injection zone(s);	40 CFR §144.19(b)(1)	<u>1. Increase in reservoir pressure within the injection zone;</u>	43-05-01-02.3. <u>TRANSITIONING FROM ENHANCED OIL OR GAS RECOVERY TO GEOLOGIC SEQUESTRATION.</u> Subsection 1; pg. 8	Okay.
Increase in carbon dioxide injection rates;	40 CFR §144.19(b)(2)	<u>2. Increase in carbon dioxide injection rates;</u>	43-05-01-02.3. <u>TRANSITIONING FROM ENHANCED OIL OR GAS RECOVERY TO GEOLOGIC SEQUESTRATION.</u> Subsection 2; pg. 8	Okay.
Decrease in reservoir production rates;	40 CFR §144.19(b)(3)	<u>3. Decrease in reservoir production rates;</u>	43-05-01-02.3. <u>TRANSITIONING FROM ENHANCED OIL OR GAS RECOVERY TO GEOLOGIC SEQUESTRATION.</u> Subsection 3; pg. 8	Okay.
Distance between the injection zone(s) and USDWs;	40 CFR §144.19(b)(4)	<u>4. Distance between the injection zone and underground sources of drinking water;</u>	43-05-01-02.3. <u>TRANSITIONING FROM ENHANCED OIL OR GAS RECOVERY TO GEOLOGIC</u>	Okay.

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			<u>SEQUESTRATION.</u> Subsection 4; pg. 8	
Suitability of the Class II area of review delineation;	40 CFR §144.19(b)(5)	<u>5. Suitability of the enhanced oil or gas recovery area of review delineation;</u>	<u>43-05-01-02.3.</u> <u>TRANSITIONING FROM</u> <u>ENHANCED OIL OR GAS</u> <u>RECOVERY TO GEOLOGIC</u> <u>SEQUESTRATION.</u> Subsection 5; pg. 8	Okay.
Quality of abandoned well plugs within the area of review;	40 CFR §144.19(b)(6)	<u>6. Quality of abandoned well plugs within the area of review;</u>	<u>43-05-01-02.3.</u> <u>TRANSITIONING FROM</u> <u>ENHANCED OIL OR GAS</u> <u>RECOVERY TO GEOLOGIC</u> <u>SEQUESTRATION.</u> Subsection 6; pg. 8	Okay.
The owner's or operator's plan for recovery of carbon dioxide at the cessation of injection;	40 CFR §144.19(b)(7)	<u>7. The storage operator's plan for recovery of carbon dioxide at the cessation of injection;</u>	<u>43-05-01-02.3.</u> <u>TRANSITIONING FROM</u> <u>ENHANCED OIL OR GAS</u> <u>RECOVERY TO GEOLOGIC</u> <u>SEQUESTRATION.</u> Subsection 7; pg. 8	Okay.
The source and properties of injected carbon dioxide; and	40 CFR §144.19(b)(8)	<u>8. The source and properties of injected carbon dioxide; and</u>	<u>43-05-01-02.3.</u> <u>TRANSITIONING FROM</u> <u>ENHANCED OIL OR GAS</u> <u>RECOVERY TO GEOLOGIC</u> <u>SEQUESTRATION.</u> Subsection 8; pg. 8	Okay.
Any additional site-specific factors as determined by the Director.	40 CFR §144.19(b)(9)	<u>9. Any additional site-specific factors as determined by the commission.</u>	<u>43-05-01-02.3.</u> <u>TRANSITIONING FROM</u> <u>ENHANCED OIL OR GAS</u> <u>RECOVERY TO GEOLOGIC</u>	Okay.

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			<u>SEQUESTRATION.</u> Subsection 9; pg. 8	
SUBPART C--AUTHORIZATION OF UNDERGROUND INJECTION BY RULE				
40 CFR §144.22 Existing Class II enhanced recovery and hydrocarbon storage wells.				
Duration of well authorization by rule. Well authorization under this section expires upon the effective date of a permit issued pursuant to §§144.19, 144.25, 144.31, 144.33 or 144.34; after plugging and abandonment in accordance with an approved plugging and abandonment plan pursuant to §§144.28(c) and 146.10 of this chapter; and upon submission of a plugging and abandonment report pursuant to §144.28(k); or upon conversion in compliance with §144.28(j).	40 CFR §144.22(b)	<u>A storage operator injecting carbon dioxide for the primary purpose of geologic sequestration into an oil and gas reservoir shall apply for and obtain storage facility and injection well permits when there is an increased risk to underground sources of drinking water compared to enhanced oil or gas recovery operations.</u>	43-05-01-02.3. <u>TRANSITIONING FROM ENHANCED OIL OR GAS RECOVERY TO GEOLOGIC SEQUESTRATION.</u> First paragraph, first sentence; pg. 8	Address what is going to happen when rule-authorized Class II wells are transferred to Class VI. Class VI wells cannot be rule authorized.
SUBPART D--AUTHORIZATION BY PERMIT				
40 CFR §144.31 Application for a permit; authorization by permit.				
Information requirements. All applicants for Class I, II, III, and V permits shall provide the following information to the Director, using the application form provided by the Director. Applicants for Class VI permits shall follow the criteria provided in §146.82 of this chapter.	40 CFR §144.31(e)	<u>1. An application for a permit must include the following:</u> <u>1. Following receipt of a storage facility permit, the storage operator shall submit applications obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.</u> <u>3. No later than Within 30 days after the conclusion of well drilling and completion activities, a permit application shall be submitted to operate an injection well and must include at a minimum:</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1; pg. 10 43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 1 and 3; pg. 20-21	Okay.

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
40 CFR §144.33 Area permits.				
Used to inject other than hazardous waste; and	40 CFR §144.33(a)(4)		N/A	Okay.
Other than Class VI wells.	40 CFR §144.33(a)(5)	<p>1. Following receipt of a storage facility permit, the storage operator shall submit applications obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.</p> <p>An application for a permit must include the following:</p> <p>a. A site map showing the boundaries of the storage reservoir and the location of all proposed wells, proposed cathodic protection boreholes, and surface facilities within the carbon dioxide storage facility area;</p>	<p>43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 1; pg. 20</p> <p>43-05-01-05. STORAGE FACILITY PERMIT</p>	Okay. Explain difference between “carbon dioxide storage facility area” and “geologic sequestration project.”
40 CFR §144.36 Duration of permits.				
Permits for Class I and V wells shall be effective for a fixed term not to exceed 10 years. UIC permits for Class II and III wells shall be issued for a period up to the operating life of the facility. UIC permits for Class VI wells shall be issued for the operating life of the facility and the post-injection site care period. The Director shall review each issued Class II, III, and VI well UIC permit at least once every 5 years to determine whether it should be modified, revoked and reissued, terminated or a minor modification made as provided in §§144.39, 144.40, or 144.41.	40 CFR §144.36(a)	<p>3. <u>Injection well permits must be issued for the operating life of the storage facility and the closure period.</u></p> <p>4. <u>The commission shall review each issued injection well permit at least once every five years to determine whether it should be modified, revoked, or a minor modification made.</u></p>	<p>43-05-01-10. <u>INJECTION WELL PERMIT.</u> Subsection 3 and 4; pg. 29</p>	Okay.
40 CFR §144.38 Transfer of permits.				
Automatic transfers. As an alternative to transfers under paragraph (a) of this section, any UIC permit for a well not injecting hazardous waste or injecting carbon dioxide for geologic sequestration may be	40 CFR §144.38(b)	3. Commission approval required. A permit transfer can occur only upon the commission’s written order.	43-05-01-06. STORAGE FACILITY PERMIT TRANSFER.	Okay.

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
automatically transferred to a new permittee if:			Subsection 3; pg. 18	
40 CFR §144.39 Modification or revocation and reissuance of permits.				
*** For Class I hazardous waste injection wells, Class II, Class III or Class VI wells the following may be causes for revocation and reissuance as well as modification; and for all other wells the following may be cause for revocation or reissuance as well as modification when the permittee requests or agrees. ***	40 CFR §144.39(a)	<u>Permits are subject to review by the commission. After review, the commission may modify or revoke a permit. Permits are also subject to review when the following events occur:</u>	43-05-01-12 <u>MODIFICATION OR REVOCATION OF PERMITS.</u> First paragraph; pg. 43	Need to discuss “reissuing” a permit.
*** Permits other than for Class I hazardous waste injection wells, Class II, Class III or Class VI wells may be modified during their permit terms for this cause only as follows: ***	40 CFR §144.39(a)(3)	<u>Permits are also subject to review when the following events occur:</u>	43-05-01-12 <u>MODIFICATION OR REVOCATION OF PERMITS.</u> First paragraph, second sentence; pg. 43	Okay.
<i>Basis for modification of Class VI permits.</i> Additionally, for Class VI wells, whenever the Director determines that permit changes are necessary based on:	40 CFR §144.39(a)(5)	<u>Permits are also subject to review when the following events occur:</u>	43-05-01-12 <u>MODIFICATION OR REVOCATION OF PERMITS.</u> First paragraph, second sentence; pg. 43	Okay.
Area of review reevaluations under §146.84(e)(1) of this chapter;	40 CFR §144.39(a)(5)(i)	<u>5. Area of review reevaluations under subdivision a of subsection 4 of section 43-05-01-05.1;</u>	43-05-01-12 <u>MODIFICATION OR REVOCATION OF PERMITS.</u> Subsection 5; pg. 43	Okay.
Any amendments to the testing and monitoring plan under §146.90(j) of this chapter;	40 CFR §144.39(a)(5)(ii)	<u>6. Amendment to the testing and monitoring plan under subsection 10 of section 43-05-01-11.4;</u>	43-05-01-12 <u>MODIFICATION OR</u>	Okay.

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
			<u>REVOCATION OF PERMITS.</u> Subsection 6; pg. 43	
Any amendments to the injection well plugging plan under §146.92(c) of this chapter;	40 CFR §144.39(a)(5)(iii)	<u>7. Amendment to the injection well plugging plan under subsection 3 of section 43-05-01-11.5;</u>	<u>43-05-01-12 MODIFICATION OR REVOCATION OF PERMITS.</u> Subsection 7; pg. 43	Okay.
Any amendments to the post-injection site care and site closure plan under §146.93(a)(3) of this chapter;	40 CFR §144.39(a)(5)(iv)	<u>8. Amendment to the post-injection site care and facility closure plan under subsection 3 of section 43-05-01-19;</u>	<u>43-05-01-12 MODIFICATION OR REVOCATION OF PERMITS.</u> Subsection 8; pg. 44	Okay.
Any amendments to the emergency and remedial response plan under §146.94(d) of this chapter; or	40 CFR §144.39(a)(5)(v)	<u>9. Amendment to the emergency and remedial response plan under subsection 4 of section 43-05-01-13; or</u>	<u>43-05-01-12 MODIFICATION OR REVOCATION OF PERMITS.</u> Subsection 9; pg. 44	Okay.
A review of monitoring and/or testing results conducted in accordance with permit requirements.	40 CFR §144.39(a)(5)(vi)	<u>10. Review of monitoring and testing results conducted in accordance with injection well permit requirements.</u>	<u>43-05-01-12 MODIFICATION OR REVOCATION OF PERMITS.</u> Subsection 10; pg. 44	Okay.
40 CFR §144.41 Minor modifications of permits.				
Amend a Class VI injection well testing and monitoring plan, plugging plan, post-injection site care and site closure plan, or emergency and remedial response plan where the modifications merely clarify or correct the plan, as determined by	40 CFR §144.41(h)	<u>Upon agreement between the storage operator and the commission, the commission may modify a permit to make the corrections or allowances without the storage operator filing an application to amend a permit. Any permit modification not processed as a minor modification under</u>	<u>43-05-02-12.1. MINOR MODIFICATIONS OF PERMITS.</u> Paragraph; pg. 44	Area of Review reevaluation is not a minor modification.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
the Director.		Formatting retained from original; text moved from far right column unless otherwise noted.		
		<u>this section must be filed as an application to amend an existing permit under section 43-05-01-12. Minor modifications may include: area of review reevaluations or changes to the testing and monitoring plan, plugging plan, post-injection site care and facility closure plan, or emergency and remedial response plan where the modifications merely clarify or correct the plan, as determined by the commission.</u>		
SUBPART E--PERMIT CONDITIONS				
40 CFR §144.51 Conditions applicable to all permits.				
Owners or operators of Class VI wells shall retain records as specified in subpart H of part 146, including §§ 146.84(g), 146.91(f), 146.92(d), 146.93(f), and 146.93(h) of this chapter.	40 CFR §144.51(j)(4)	<u>6. All modeling inputs and data used to support area of review delineations and reevaluations must be retained until project completion. Upon project completion the storage operator shall deliver the records to the commission.</u> <u>9. The storage operator shall retain records until project completion. Upon project completion the storage operator shall deliver any records required in this section to the commission. The following records shall be retained:</u> <u>d. All records from the closure period including well plugging reports, post-injection site care data, and the final assessment;</u> <u>4. Within 60 days after plugging, the storage operator shall submit, a plugging report to the commission. The report must be certified as accurate by the storage operator and by the person who performed the plugging operation (if other than the storage operator). The storage operator shall retain the well plugging report until project completion. Upon project completion the storage operator shall deliver the records to the commission</u>	<u>43-05-01-05.1. Area of review and corrective action.</u> Subsection 6; pg. 18 43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 9; pg. 49 <u>43-05-01-11.5. Injection well plugging.</u> Subsection 4; pg. 39 43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 9 d; pg. 49	Question on record retention requirements and overall process of transferring responsibility of the well from the storage operator to the Commission.

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
A Class I, II or III permit shall include and a Class V permit may include conditions which meet the applicable requirements of §146.10 of this chapter to ensure that plugging and abandonment of the well will not allow the movement of fluids into or between USDWs. Where the plan meets the requirements of §146.10 of this chapter, the Director shall incorporate the plan into the permit as a permit condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director may require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the permit. A Class VI permit shall include conditions which meet the requirements set forth in §146.92 of this chapter. Where the plan meets the requirements of §146.92 of this chapter, the Director shall incorporate it into the permit as a permit condition. For purposes of this paragraph, temporary or intermittent cessation of injection operations is not abandonment.	40 CFR §144.51(o)	<p><u>m. A plugging plan that meets requirements pursuant to section 43-05-01-11.5</u></p> <p><u>2. The storage operator shall prepare, maintain, and comply with a plugging plan that is acceptable to the commission. The plan must be submitted as part of the storage facility permit application and must include the following:</u></p>	<p>43-05-01-05. STORAGE FACILITY PERMIT.</p> <p>Subsection 1 m; pg. 15</p> <p><u>43-05-01-11.5. Injection well plugging.</u></p> <p>Subsection 2; pg. 39</p>	<p>Add reference to 40 CFR 146.92; Add language that requires the Commission to incorporate the plan (that meets requirements at 40 CFR 146.92) into the permit as a permit condition.</p> <p>Add language that addresses, “Where the Director’s review of an application indicates that the permittee’s plan is inadequate, the Director may require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the permit.</p>
The owner or operator of a Class I, II, III or VI well permitted under this part shall establish mechanical integrity prior to commencing injection or on a schedule determined by the Director. Thereafter the owner or operator of Class I, II, and III wells must maintain mechanical integrity as defined in §146.8 of this chapter and the owner or operator of Class VI wells must maintain mechanical integrity as defined in §146.89 of this chapter. ***	40 CFR §144.51(q)(1)	<p><u>1413. All newly drilled wells must establish internal and external mechanical integrity as specified by the commission and demonstrate continued mechanical integrity through periodic testing as determined by the commission. All other wells to be used as injection wells must demonstrate mechanical integrity as specified by the commission prior to use for injection and be tested on an ongoing basis as determined by the commission using these methods:</u></p> <p><u>1. An injection well has mechanical integrity if:</u></p>	<p>43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u></p> <p>Subsection 14; pg. 29</p> <p><u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u></p> <p>Subsection 1; pg. 32</p>	<p>Okay.</p>
When the Director determines that a Class I, II, III or VI well lacks mechanical integrity pursuant to	40 CFR §144.51(q)(2)	16.45.If an injection well fails to demonstrate mechanical integrity by an approved method, the storage operator shall	43-05-01-11. <u>INJECTION WELL OPERATIONAL</u>	<p>Add language that addresses the federal requirement, “The Commission must give</p>

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
§§146.8 or 146.89 of this chapter for Class VI of this chapter, he/she shall give written notice of his/her determination to the owner or operator. ***		Formatting retained from original; text moved from far right column unless otherwise noted. immediately shut in the well, report the failure to the commission, and commence isolation and repair of the leak. The operator shall, within ninety days or as otherwise directed by the commission, perform one of the following:	<u>CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 16; pg. 32	written notice of his/her determination that a well lacks mechanical integrity to the storage operator
40 CFR §144.52 Establishing permit conditions.				
In addition to conditions required in §144.51, the Director shall establish conditions, as required on a case-by-case basis under §144.36 (duration of permits), §144.53(a) (schedules of compliance), §144.54 (monitoring), and for EPA permits only §144.53(b) (alternate schedules of compliance), and §144.4 (considerations under Federal law). Permits for owners or operators of hazardous waste injection wells shall include conditions meeting the requirements of §144.14 (requirements for wells injecting hazardous waste), paragraphs (a)(7) and (a)(9) of this section, and subpart G of part 146. Permits for owners or operators of Class VI injection wells shall include conditions meeting the requirements of subpart H of part 146. Permits for other wells shall contain the following requirements, when applicable.	40 CFR §144.52(a)	<p><u>1. An application for a permit must include the following:</u></p> <p>1. Following receipt of a storage facility permit, the storage operator shall submit applications obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.</p> <p>3. <u>No later than Within 30 days after the conclusion of well drilling and completion activities, a permit application shall be submitted to operate an injection well and must include at a minimum:</u></p>	43-05-01-05. STORAGE FACILITY PERMIT.; pg. 10 43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 1 and 3; pg. 20-21	Add language that addresses the federal requirement that the Director shall establish permit conditions, as required... (See text highlighted in red.)
Corrective action as set forth in §§144.55, 146.7, and 146.84 of this chapter.	40 CFR §144.52(a)(2)	<u>2. The storage operator shall perform the following actions to delineate the area of review and identify all wells that require corrective action:</u>	43-05-01-05.1. Area of review and corrective action. Subsection 1; pg. 15	Okay.
The well has been plugged and abandoned in accordance with an approved plugging and abandonment plan pursuant to §§144.51(o), 146.10, and 146.92 of this chapter, and submitted a plugging and abandonment report pursuant to §144.51(p); or	40 CFR §144.52(a)(7)(i)(A)	<p><u>1. An application for a permit must include the following:</u></p> <p>k. <u>The storage operator shall comply with the financial responsibility requirements in section 43-05-01-09.1;</u> Any other information that the commission requires; and</p> <p>1. <u>The storage operator shall demonstrate and maintain</u></p>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 k; pg. 15 <u>43-05-01-09.1. FINANCIAL</u>	Okay.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
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		<u>financial responsibility that meets the following conditions:</u>	<u>RESPONSIBILITY.</u> Subsection 1; pg. 23	
The permittee shall show evidence of such financial responsibility to the Director by the submission of a surety bond, or other adequate assurance, such as a financial statement or other materials acceptable to the Director. For EPA administered programs, the Regional Administrator may on a periodic basis require the holder of a lifetime permit to submit an estimate of the resources needed to plug and abandon the well revised to reflect inflation of such costs, and a revised demonstration of financial responsibility, if necessary. The owner or operator of a well injecting hazardous waste must comply with the financial responsibility requirements of subpart F of this part. For Class VI wells, the permittee shall show evidence of such financial responsibility to the Director by the submission of a qualifying instrument (see §146.85(a) of this chapter), such as a financial statement or other materials acceptable to the Director. The owner or operator of a Class VI well must comply with the financial responsibility requirements set forth in §146.85 of this chapter.	40 CFR §144.52(a)(7)(ii)	k. <u>The storage operator shall comply with the financial responsibility requirements in section 43-05-01-09.1;</u> Any other information that the commission requires; and l. <u>The storage operator shall demonstrate and maintain financial responsibility that meets the following conditions:</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 k; pg. 15 <u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1; pg. 23	Okay.
<i>Mechanical integrity.</i> A permit for any Class I, II, III or VI well or injection project which lacks mechanical integrity shall include, and for any Class V well may include, a condition prohibiting injection operations until the permittee shows to the satisfaction of the Director under §§146.8, or 146.89 for Class VI, that the well has mechanical integrity.	40 CFR §144.52(a)(8)	16.45- If an injection well fails to demonstrate mechanical integrity by an approved method, the storage operator shall immediately shut in the well, report the failure to the commission, and commence isolation and repair of the leak. The operator shall, within ninety days or as otherwise directed by the commission, perform one of the following: a. Repair and retest the well to demonstrate mechanical integrity; b. Properly plug the well; or	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 16 a through c; pg. 32	Add language that addresses the federal requirement of a permit condition prohibiting injection operations until the permittee (storage operator) shows to the Director (Comission) that the well has mechanical integrity. The third option “comply with an alternative plan approved by the commission” is less

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		c. Comply with an alternative plan approved by the commission.		stringent than the federal requirement. (See text highlighted in red.)
SUBPART G--REQUIREMENTS FOR OWNERS AND OPERATORS OF CLASS V INJECTION WELLS				
40 CFR §144.80 What is a Class V injection well?				
<i>Class V.</i> Injection wells not included in Class I, II, III, IV or VI. ***	40 CFR §144.80(e)		N/A	Okay.
<i>Class VI.</i> Wells used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW, except those wells that are experimental in nature; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at §146.95 of this chapter; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to §§146.4 of this chapter and 144.7(d).	40 CFR §144.80(f)	<u>12. “Geologic sequestration project” means an injection well or wells used to emplace a carbon dioxide stream beneath the lowermost formation containing underground sources of drinking water; or, wells used for geologic sequestration that have been granted a waiver of the injection depth requirements; or, wells used for geologic sequestration that have received an expansion to the areal extent of an existing enhanced oil or gas recovery aquifer exemption. It includes the subsurface three-dimensional extent of the carbon dioxide plume, as well as the associated pressure front.</u> <u>13.8.</u> “Injection well” means a <u>non-experimental</u> well used to inject carbon dioxide into or withdraw carbon dioxide from a reservoir.	43-05-01-01. DEFINITIONS. Subsection 12 and 13; pg. 4-5	Okay.
PART 146--UNDERGROUND INJECTION CONTROL PROGRAM: CRITERIA AND STANDARDS				
SUBPART A--GENERAL PROVISIONS				
40 CFR §146.4 Criteria for exempted aquifers.				
An aquifer or a portion thereof which meets the criteria for an “underground source of drinking water” in §146.3 may be determined under §144.7 of this chapter to be an “exempted aquifer” for Class I-V wells if it meets the criteria in paragraphs (a)	40 CFR §146.4	An aquifer or a portion thereof which meets the criteria for an underground source of drinking water may be determined by the commission, after notice and hearing, to be an exempted aquifer if it meets the following criteria:	NDAC 43-02-05-03. EXEMPTED AQUIFERS. First paragraph; pg. (IV-2)	Okay.

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through (c) of this section. Class VI wells must meet the criteria under paragraph (d) of this section:				
The areal extent of an aquifer exemption for a Class II enhanced oil recovery or enhanced gas recovery well may be expanded for the exclusive purpose of Class VI injection for geologic sequestration under §144.7(d) of this chapter if it meets the following criteria:	40 CFR §146.4(d)	<p>43-05-01-02.4, subsection 3 (added during crosswalk review): <u>3. A storage operator of enhanced oil or gas recovery wells may apply to the commission for approval to expand the areal extent of an aquifer exemption already in place for a enhanced oil or gas recovery well for the exclusive purpose of carbon dioxide injection for geologic sequestration.</u></p> <p>a. A storage operator's application must define (by narrative description, illustrations, maps, or other means) and describe in geographic or geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all aquifers or parts thereof that are requested to be designated as exempted under section 43-02-05-03.</p> <p>43-05-01-02.4, subsection 3b (added during crosswalk review): <u>b. In evaluating an application the commission shall determine that it meets the criteria for exemptions in section 43-02-05-03.</u></p>	<p>43-05-01-02.4. EXEMPTED AQUIFERS AND EXPANSIONS OF AREAL EXTENT OF EXISTING AQUIFER EXEMPTIONS.</p> <p>Subsection 3 a, 3b; pg. 9</p>	<p>Note: Aquifer Exemptions for Class VI wells are limited to Class II wells that are converting to Class VI wells only.</p>
It does not currently serve as a source of drinking water; and	40 CFR §146.4(d)(1)	1. It does not currently serve as a source of drinking water; and	NDAC 43-02-05-03. EXEMPTED AQUIFERS. Subsection 1; pg. (IV-2)	Okay.
The total dissolved solids content of the ground water is more than 3,000 mg/l and less than 10,000 mg/l; and	40 CFR §146.4(d)(2)	3. The total dissolved solids content of the ground water is more than three thousand and less than ten thousand milligrams per liter and it is not reasonably expected to supply a public water system.	NDAC 43-02-05-03. EXEMPTED AQUIFERS. Subsection 3; pg. (IV-2)	Okay.
It is not reasonably expected to supply a public water system.	40 CFR §146.4(d)(3)	2. It cannot now and will not in the future serve as a source of drinking water because:	NDAC 43-02-05-03. EXEMPTED AQUIFERS. Subsection 2; (IV-2)	Okay.

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40 CFR §146.5 Classification of injection wells.				
<i>Class V.</i> Injection wells not included in Class I, II, III, IV or VI. ***	40 CFR §146.5(e)		N/A	Okay.
<i>Class VI.</i> Wells that are not experimental in nature that are used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at §146.95; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to §§146.4 of this chapter and 144.7(d).	40 CFR §146.5(f)	<p>12. “Geologic sequestration project” means an injection well or wells used to emplace a carbon dioxide stream beneath the lowermost formation containing underground sources of drinking water; or, wells used for geologic sequestration that have been granted a waiver of the injection depth requirements; or, wells used for geologic sequestration that have received an expansion to the areal extent of an existing enhanced oil or gas recovery aquifer exemption. It includes the subsurface three-dimensional extent of the carbon dioxide plume, as well as the associated pressure front.</p> <p>13.8. “Injection well” means a non-experimental well used to inject carbon dioxide into or withdraw carbon dioxide from a reservoir.</p>	43-05-01-01. DEFINITIONS. Subsection 12 and 13; pg. 4-5	Question: What is the difference between “project” and “facility”? (Question asked earlier.)
SUBPART H--CRITERIA AND STANDARDS APPLICABLE TO CLASS VI WELLS				
40 CFR §146.81 Applicability.				
This subpart establishes criteria and standards for underground injection control programs to regulate any Class VI carbon dioxide geologic sequestration injection wells.	40 CFR §146.81(a)	<p>This chapter governs the geologic storage of carbon dioxide.</p> <p>1. Following receipt of a storage facility permit, the storage operator shall submit applications obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.</p>	43-05-01-02. SCOPE OF CHAPTER.; pg. 7 43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS Subsection 1; pg. 20	Okay.
This subpart applies to any wells used to inject carbon dioxide specifically for the purpose of geologic sequestration, i.e., the long-term containment of a gaseous, liquid, or supercritical	40 CFR §146.81(b)	This chapter governs the geologic storage of carbon dioxide.	43-05-01-02. SCOPE OF CHAPTER.; pg. 7	Okay.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
carbon dioxide stream in subsurface geologic formations.		Formatting retained from original; text moved from far right column unless otherwise noted.		
<p>This subpart also applies to owners or operators of permit- or rule-authorized Class I, Class II, or Class V experimental carbon dioxide injection projects who seek to apply for a Class VI geologic sequestration permit for their well or wells. Owners or operators seeking to convert existing Class I, Class II, or Class V experimental wells to Class VI geologic sequestration wells must demonstrate to the Director that the wells were engineered and constructed to meet the requirements at § 146.86(a) and ensure protection of USDWs, in lieu of requirements at §§ 146.86(b) and 146.87(a). By [INSERT DATE 365 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], owners or operators of either Class I wells previously permitted for the purpose of geologic sequestration or Class V experimental technology wells no longer being used for experimental purposes that will continue injection of carbon dioxide for the purpose of GS must apply for a Class VI permit. A converted well must still meet all other requirements under part 146.</p>	40 CFR § 146.81(c)	<p>1. Following receipt of a storage facility permit, the storage operator shall submit applications obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.</p>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS Subsection 1; pg. 20	<p>Add language to address conversion from Class II to Class VI. (See text highlighted in Red.)</p>
<p><i>Definitions.</i> The following definitions apply to this subpart. To the extent that these definitions conflict with those in §§ 144.3 or 146.3 of this chapter these definitions govern for Class VI wells: <i>area of review, carbon dioxide plume, carbon dioxide stream, confining zone, corrective action, geologic sequestration, geologic sequestration project, injection zone, post-injection site care, pressure front, site closure, transmissive fault or fracture.</i></p>	40 CFR § 146.81(d)	<p>See rule. I use “project completion” in place of “site closure”</p>	43-05-01-01. DEFINITIONS. Subsections: 1,3, 4, 6, 7, 11, 12, 14, 20, 21, 22, 24; pg. 1-7	<p>Question on terminology used; explain how project completion is the same as site closure.</p> <p>Question on the process of project completion and transfer of well responsibility to the Commission.</p>

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40 CFR §146.82 Required Class VI permit information.				
This section sets forth the information which must be considered by the Director in authorizing Class VI wells. For converted Class I, Class II, or Class V experimental wells, certain maps, cross-sections, tabulations of wells within the area of review and other data may be included in the application by reference provided they are current, readily available to the Director, and sufficiently identified to be retrieved. In cases where EPA issues the permit, all the information in this section must be submitted to the Regional Administrator.	40 CFR §146.82	<p>1. An application for a permit must include the following:</p> <p>1. Following receipt of a storage facility permit, the storage operator shall submit applications obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.</p> <p>3. No later than Within 30 days after the conclusion of well drilling and completion activities, a permit application shall be submitted to operate an injection well and must include at a minimum:</p>	<p>43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1; pg. 10</p> <p>43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 1 and 3; pg. 20 and 21</p>	Add language that references the information the Director (Commission) must consider in authorizing Class VI wells.
Prior to the issuance of a permit for the construction of a new Class VI well or the conversion of an existing Class I, Class II, or Class V well to a Class VI well, the owner or operator shall submit, pursuant to §146.91(e), and the Director shall consider the following:	40 CFR §146.82(a)	1. Following receipt of a storage facility permit, the storage operator shall submit applications obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 1; pg. 20	Add language that the Director (Commission) shall consider the following. (See highlighted text in red.)
Information required in §144.31 (e)(1) through (6) of this chapter;	40 CFR §146.82(a)(1)	1. An application for a permit must include the following:	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1; pg. 10	Add reference to §144.31(e)(1)-(6) or language that addresses §144.31(e)(1)-(6).
A map showing the injection well for which a permit is sought and the applicable area of review consistent with §146.84. Within the area of review, the map must show the number or name, and location of all injection wells, producing wells, abandoned wells, plugged wells or dry holes, deep stratigraphic boreholes, State- or EPA-approved subsurface cleanup sites, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells, other pertinent surface features including structures	40 CFR §146.82(a)(2)	<p>a. A site map showing the boundaries of the storage reservoir and the location of all proposed wells, proposed cathodic protection boreholes, and surface facilities within the carbon dioxide storage facility area;</p> <p>d. A map of the area of review. The map must show the number or name and location of all injection wells, producing wells, abandoned wells, plugged wells or dry holes, deep stratigraphic boreholes, subsurface cleanup sites, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells, other pertinent surface</p>	<p>43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 a; pg. 10</p> <p>43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (3) e; pg. 12-13</p>	<p>Instead of “Indian Reservation boundaries,” use “Indian Country boundary lines”</p> <p>Add “State or EPA-approved” language in front of “subsurface cleanup sites.”</p>

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intended for human occupancy, State, Tribal, and Territory boundaries, and roads. The map should also show faults, if known or suspected. Only information of public record is required to be included on this map;		<u>features including structures intended for human occupancy, State, County, or Indian Reservation boundaries lines, and roads;</u>		
Information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying formations, including:	40 CFR §146.82(a)(3)	(2) A geologic and hydrogeologic evaluation of the facility area, including an evaluation of all existing information on all geologic strata overlying the storage reservoir, including the immediate caprock containment characteristics and all subsurface zones to be used for monitoring.	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (2); pg. 10	Okay.
Maps and cross sections of the area of review;	40 CFR §146.82(a)(3)(i)	d. <u>Maps and cross sections of the area of review.</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (3) (d); pg. 12	Okay.
The location, orientation, and properties of known or suspected faults and fractures that may transect the confining zone(s) in the area of review and a determination that they would not interfere with containment;	40 CFR §146.82(a)(3)(ii)	(j) <u>The location, orientation, and properties of known or suspected faults and fractures that may transect the confining zone in the area of review, and a determination that they would not interfere with containment;</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (2) (j); pg. 11	Okay.
Data on the depth, areal extent, thickness, mineralogy, porosity, permeability, and capillary pressure of the injection and confining zone(s); including geology/facies changes based on field data which may include geologic cores, outcrop data, seismic surveys, well logs, and names and lithologic descriptions;	40 CFR §146.82(a)(3)(iii)	(k) <u>Data on the depth, areal extent, thickness, mineralogy, porosity, permeability, and capillary pressure of the injection and confining zone; including facies changes based on field data, which may include geologic cores, outcrop data, seismic surveys, well logs, and names and lithologic descriptions;</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (2) (k); pg. 12	Okay.
Geomechanical information on fractures, stress, ductility, rock strength, and in situ fluid pressures within the confining zone(s);	40 CFR §146.82(a)(3)(iv)	(l) <u>Geomechanical information on fractures, stress, ductility, rock strength, and in situ fluid pressures within the confining zone;</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (2) (l); pg. 12	Okay.
Information on the seismic history including the presence and depth of seismic sources and a	40 CFR §146.82(a)(3)(v)	(m) <u>Information on the seismic history including the presence and depth of seismic sources and a determination</u>	43-05-01-05. STORAGE FACILITY PERMIT.	Okay.

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determination that the seismicity would not interfere with containment; and		<u>that the seismicity would not interfere with containment; and</u>	Subsection 1 b (2) (m); pg. 12	
Geologic and topographic maps and cross sections illustrating regional geology, hydrogeology, and the geologic structure of the local area.	40 CFR §146.82(a)(3)(vi)	(n) <u>Geologic and topographic maps and cross sections illustrating regional geology, hydrogeology, and the geologic structure of the facility area.</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (2) (n); pg. 12	Question about “facility area.”
A tabulation of all wells within the area of review which penetrate the injection or confining zone(s). Such data must include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require;	40 CFR §146.82(a)(4)	(3) <u>A review of the data of public record, conducted by a geologist or engineer, for all wells within the facility area, which penetrate the storage reservoir or primary or secondary seals overlying the reservoir, and all wells within the facility area and within one mile [1.61 kilometers], or any other distance as deemed necessary by the commission, of the facility area boundary. This review must determine if all abandoned wells have been plugged in a manner that prevents the carbon dioxide or associated fluids from escaping from the storage reservoir. The review required under this paragraph shall be conducted by a geologist or engineer; The review must include the following:</u> <u>b. A description of each well’s type, construction, date drilled, location, depth, record of plugging, and completion;</u> <u>43-05-01-05, subsection 1b(3)(g) (added during crosswalk review); g. Any additional information the commission may require.</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (3); pg. 12 43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (3) (b); pg. 12	Confining zone(s).
Maps and stratigraphic cross sections indicating the general vertical and lateral limits of all USDWs, water wells and springs within the area of review, their positions relative to the injection zone(s), and the direction of water movement, where known;	40 CFR §146.82(a)(5)	<u>c. Maps and stratigraphic cross sections indicating the general vertical and lateral limits of all underground sources of drinking water, water wells and springs within the area of review; their positions relative to the injection zone; and the direction of water movement, where known;</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (3) (c); pg. 12	Okay.
Baseline geochemical data on subsurface formations, including all USDWs in the area of review;	40 CFR §146.82(a)(6)	<u>f. Baseline geochemical data on subsurface formations, including all underground sources of drinking water in the area of review; and</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (3) (f); pg. 13	Okay.

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Proposed operating data for the proposed geologic sequestration site:	40 CFR §146.82(a)(7)	<u>b. A technical evaluation of the proposed storage facility, including the following:</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b; pg. 10	Okay.
Average and maximum daily rate and volume and/or mass and total anticipated volume and/or mass of the carbon dioxide stream;	40 CFR §146.82(a)(7)(i)	<u>(4) The proposed calculated average and maximum daily injection rates, daily volume, and areal extent for the storage reservoir facility area using a method acceptable to and filed with the commission; and</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (4); pg. 13	Add “total anticipated volume and/or mass of the carbon dioxide stream.”
Average and maximum injection pressure;	40 CFR §146.82(a)(7)(ii)	<u>(5) The proposed average and maximum bottom hole injection pressure to be utilized at the reservoir. The maximum allowed injection pressure, measured in pounds per square inch gauge, shall be approved by the commission and specified in the permit. In approving a maximum injection pressure limit, the commission shall consider the results of well tests and other studies that assess the risks of tensile failure and shear failure. The commission shall approve limits that, with a reasonable degree of certainty, will avoid initiating a new fracture or propagating an existing fracture in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water;</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (5); pg. 13	Add language “not to fracture” or use the federal requirement at 146.88(a).
The source(s) of the carbon dioxide stream; and	40 CFR §146.82(a)(7)(iii)	<u>d. An affidavit specifying the chemical constituents of the injection carbon dioxide stream other than carbon dioxide and their relative proportions; and the source of the carbon dioxide stream;</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 d; pg. 22	Add language that addresses the physical properties/characteristics of the carbon dioxide stream.
An analysis of the chemical and physical characteristics of the carbon dioxide stream.	40 CFR §146.82(a)(7)(iv)	<u>d. An affidavit specifying the chemical constituents of the injection carbon dioxide stream other than carbon dioxide and their relative proportions; and the source of the carbon dioxide stream;</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 d; pg. 22	

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Proposed pre-operational formation testing program to obtain an analysis of the chemical and physical characteristics of the injection zone(s) and confining zone(s) and that meets the requirements at §146.87;	40 CFR §146.82(a)(8)	<u>(6) The proposed pre-operational formation testing program to obtain an analysis of the chemical and physical characteristics of the injection zone and confining zone pursuant to section 43-05-01-11.2; and</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (6); pg. 13	Okay.
Proposed stimulation program, a description of stimulation fluids to be used and a determination that stimulation will not interfere with containment;	40 CFR §146.82(a)(9)	<u>(7) The proposed stimulation program, a description of stimulation fluids to be used and a determination that stimulation will not interfere with containment.</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (7); pg. 13	Okay.
Proposed procedure to outline steps necessary to conduct injection operation;	40 CFR §146.82(a)(10)	3. No later than Within 30 days after the conclusion of well drilling and completion activities, a permit application shall be submitted to operate an injection well and must include at a minimum:	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3; pg. 21	Add language to address “proposed procedure to outline steps necessary to conduct injection operation.”
Schematics or other appropriate drawings of the surface and subsurface construction details of the well;	40 CFR §146.82(a)(11)	a. A schematic diagram of the surface injection system and its appurtenances; 43-05-01-09, subsection 2c (added during crosswalk review): c. A well bore schematic showing the name, description, and depth of the storage reservoirs and the depth of the deepest underground source of drinking water; a description of the casing in the injection or subsurface observation well, or the proposed casing program, including a full description of cement already in place or as proposed; and the proposed method of testing casing before use of the injection well;	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 a; pg. 21	Add language to address “subsurface construction details of the well.”
Injection well construction procedures that meet the requirements of §146.86;	40 CFR §146.82(a)(12)	i. The proposed well casing and cementing program detailing compliance with section 43-05-01-09; c. A well bore schematic showing the name, description, and depth of the storage reservoirs and the depth of the deepest underground source of drinking water; a description of the casing in the injection or subsurface observation well, or the proposed casing program, including a full description of cement already in place or as proposed; and the proposed	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 i; pg. 15 43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 2 c; pg. 21	Add language that addresses “injection well construction procedures.”

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		method of testing casing before use of the injection well;		
Proposed area of review and corrective action plan that meets the requirements under §146.84;	40 CFR §146.82(a)(13)	j. <u>An area of review and corrective action plan that meets the requirements pursuant to section 43-05-01-05.1;</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 j; pg. 15	Okay.
A demonstration, satisfactory to the Director, that the applicant has met the financial responsibility requirements under §146.85;	40 CFR §146.82(a)(14)	k. <u>The storage operator shall comply with the financial responsibility requirements in section 43-05-01-09.1;</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 k; pg. 15	Replace “storage operator” with “Commission.” Add language that addresses “ a demonstration, satisfactory to the Commission, that the storage operator has met the financial responsibility requirements...”
Proposed testing and monitoring plan required by §146.90;	40 CFR §146.82(a)(15)	l. A closure plan. <u>A testing and monitoring plan pursuant to section 43-05-01-11.4</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 l; pg. 15	Okay.
Proposed injection well plugging plan required by §146.92(b);	40 CFR §146.82(a)(16)	m. <u>A plugging plan that meets requirements pursuant to section 43-05-01-11.5</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 m; pg. 15	Okay.
Proposed post-injection site care and site closure plan required by §146.93(a);	40 CFR §146.82(a)(17)	n. <u>A post-injection site care and facility closure plan pursuant to section 43-05-01-19; and</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 n; pg. 15	Okay.
At the Director’s discretion, a demonstration of an alternative post-injection site care timeframe required by §146.93(c);	40 CFR §146.82(a)(18)	4. <u>The certificate may not be issued until at least ten years after carbon dioxide injections end.</u>	NDCC 38-22-17. Certificate of project completion - Release - Transfer of title and custody. Subsection 4; pg. 45	Add language that addresses the Director’s discretion (Commission’s discretion). Question about 10 years after carbon dioxide injection ends. Explain the “certificate” issued by the Commission.
Proposed emergency and remedial response plan	40 CFR	d. A detailed description of the storage facility’s public	43-05-01-05. STORAGE	Add language that addresses “proposed

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required by §146.94(a);	§146.82(a)(19)	Formatting retained from original; text moved from far right column unless otherwise noted. safety and emergency and remedial response plan pursuant to section 43-05-01-13.	FACILITY PERMIT. Subsection 1 d; pg. 14	emergency and remedial response plan.” The actual plan is required, not a description.
A list of contacts, submitted to the Director, for those States, Tribes, and Territories identified to be within the area of review of the Class VI project based on information provided in paragraph (a)(2) of this section; and	40 CFR §146.82(a)(20)	e. A map of the area of review showing the number or name and location of all injection wells, producing wells, abandoned wells, plugged wells or dry holes, deep stratigraphic boreholes, subsurface cleanup sites, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells, other pertinent surface features including structures intended for human occupancy, State, County, or Indian Reservation boundaries lines, and roads;	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (3) d; pg. 12-13	Add language that addresses the federal requirement that a list of contacts be submitted to the Commission, including State, Tribes, and Territories identified to be within the area of review.
Any other information requested by the Director.	40 CFR §146.82(a)(21)	o. Any other information that the commission requires.	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 o; pg. 15	Okay.
The Director shall notify, in writing, any States, Tribes, or Territories within the area of review of the Class VI project based on information provided in paragraphs (a)(2) and (a)(20) of this section of the permit application and pursuant to the requirements at §145.23(f)(13) of this chapter.	40 CFR §146.82(b)	The commission shall hold a public hearing before issuing a storage facility permit. At least forty-five days prior to the hearing, the applicant shall give notice of the hearing to the following: a. Each operator of mineral extraction activities within the facility area and within one-half mile [.80 kilometer] outside of the facility area its outside boundary; b. Each mineral lessee of record within the facility area and within one-half mile [.80 kilometer] of its outside boundary; c. Each owner of record of the surface within the facility area and one-half mile [.80 kilometer] of its outside boundary; d. Each owner of record of minerals within the project facility area and within one-half mile [.80 kilometer] of its outside boundary; e. Each owner and each lessee of record of the pore space within the storage reservoir and within one-half mile [.80	43-05-01-08. <u>STORAGE FACILITY PERMIT HEARING</u> Subsection 1 a through f; pg. 19 43-05-01-08. <u>STORAGE FACILITY PERMIT HEARING</u> Subsection 3, Last sentence; pg. 20	Add language that addresses the federal requirement that the Director must notify, in writing, any States, Tribes, or Territories within the area of review of the Class VI project. (See highlighted text in red.)

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		<p>Formatting retained from original; text moved from far right column unless otherwise noted.</p> <p><u>kilometer] of the reservoir's boundary; and</u> <u>f. Any other persons as required by the commission</u> The public notice must state that an application has been filed with the commission for permission to store carbon dioxide and describe the location of the proposed facility area and the date, time, and place of the hearing before the commission at which time the merits of the application will be considered.</p>		
Prior to granting approval for the operation of a Class VI well, the Director shall consider the following information:	40 CFR §146.82(c)	3. No later than Within 30 days after the conclusion of well drilling and completion activities, a permit application shall be submitted to operate an injection well and must include at a minimum:	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3; pg. 21	Add language that the Director (Commission) must consider the following information.
The final area of review based on modeling, using data obtained during logging and testing of the well and the formation as required by paragraphs (c)(2), (3), (4), (6), (7), and (10) of this section:	40 CFR §146.82(c)(1)	<u>g. The final area of review based on modeling, using data obtained during logging and testing of the well and the formation, including any relevant updates on the geologic structure and hydrogeologic properties of the proposed storage reservoir and overlying formations;</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 g; pg. 22	Add reference to other paragraphs or code sections. (See text highlighted in red.)
Any relevant updates, based on data obtained during logging and testing of the well and the formation as required by paragraphs (c)(3), (4), (6), (7), and (10) of this section, to the information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying formations, submitted to satisfy the requirements of paragraph (a)(3) of this section:	40 CFR §146.82(c)(2)	<u>c. The well's complete dual induction or equivalent log through the storage reservoir. Such a log shall be run prior to setting casing through the storage reservoir. Logs must be annotated to identify the estimated location of the base of the deepest underground source of drinking water, showing the stratigraphic position and thickness of all confining strata above the storage reservoir and the reservoir's stratigraphic position and thickness unless that information has been previously submitted. When approved in advance by the commission, this information can be demonstrated with a dual induction or equivalent log run in a nearby well or by such other method acceptable to the commission;</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 c; pg. 22	Add language that addresses the federal requirements found at paragraphs (c)(3), (4), (6), (7) and (10). ND's regulation is too narrow in scope.

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Information on the compatibility of the carbon dioxide stream with fluids in the injection zone(s) and minerals in both the injection and the confining zone(s), based on the results of the formation testing program, and with the materials used to construct the well;	40 CFR §146.82(c)(3)	<u>h. Information on the compatibility of the carbon dioxide stream with fluids in the injection zone and minerals in both the injection and the confining zone, based on the results of the formation testing program, and with the materials used to construct the well;</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 h; pg. 22	Injection zone(s).
The results of the formation testing program required at paragraph (a)(8) of this section;	40 CFR §146.82(c)(4)	<u>i. The results of the formation testing program;</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 i; pg. 22	Add reference to federal requirement at (a)(8).
Final injection well construction procedures that meet the requirements of §146.86;	40 CFR §146.82(c)(5)	<u>b. A final well bore diagram showing the name, description, and depths of the storage reservoir and the base of the deepest underground source of drinking water and a diagram of the well depicting the casing, cementing, perforation, tubing, and plug and packer records associated with the construction of the well;</u> <u>e. Proof that the long string of casing of the well is cemented adequately so that the carbon dioxide is confined to the storage reservoirs. Such proof must be provided in the form of a cement bond log or the results of a fluid movement study or such other method specified by the commission; and</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 b and e; pg. 22	Add procedures similar to those found at §146.86.
The status of corrective action on wells in the area of review;	40 CFR §146.82(c)(6)	<u>j. The status of corrective action on wells in the area of review;</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 j; pg. 22	Okay.
All available logging and testing program data on the well required by §146.87;	40 CFR §146.82(c)(7)	<u>k. All available logging and testing program data on the well;</u>	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 k; pg. 22	Add reference to §146.87.

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A demonstration of mechanical integrity pursuant to §146.89;	40 CFR §146.82(c)(8)	f. The results of a mechanical-integrity test, if applicable to well type, of the casing in accordance with the pressure test requirements of this section if a test was run within one calendar year preceding the request for a conversion permit for a previously drilled well.;	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 f; pg. 22	Delete “if applicable” and add language that addresses “demonstration of mechanical integrity.”
Any updates to the proposed area of review and corrective action plan, testing and monitoring plan, injection well plugging plan, post-injection site care and site closure plan, or the emergency and remedial response plan submitted under paragraph (a) of this section, which are necessary to address new information collected during logging and testing of the well and the formation as required by all paragraphs of this section, and any updates to the alternative post-injection site care timeframe demonstration submitted under paragraph (a) of this section, which are necessary to address new information collected during the logging and testing of the well and the formation as required by all paragraphs of this section; and	40 CFR §146.82(c)(9)	l. Any updates to the proposed area of review and corrective action plan, testing and monitoring plan, injection well plugging plan, post-injection site care and facility closure plan, and the emergency and remedial response plan, which are necessary to address new information collected during logging and testing of the well; and	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 l; pg. 23	Add language that addresses, “and any updates to the alternative post-injection site care timeframe demonstration submitted under paragraph (a) of this section, which are necessary to address new information collected during the logging and testing of the well and the formation as required by all paragraphs of this section; and” . (See text highlighted in red.)
Any other information requested by the Director.	40 CFR §146.82(c)(10)	m. Any other information that the commission requires.	43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS. Subsection 3 m; pg. 23	Okay. <u>Reminder</u> : Describe the person in the Commission who will be running the Class VI UIC program.
Owners or operators seeking a waiver of the requirement to inject below the lowermost USDW must also refer to §146.95 and submit a supplemental report, as required at §146.95(a). The supplemental report is not part of the permit application.	40 CFR §146.82(d)	1. In seeking a waiver of the requirement to inject below the lowermost underground sources of drinking water, the storage operator shall submit a supplemental report concurrent with the storage facility permit application. The supplemental report must:	43-05-01-11.6. injection depth waiver requirements. Subsection 1; pg. 39	Add reference to §146.95.
40 CFR §146.83 Minimum criteria for siting.				
Owners or operators of Class VI wells must	40 CFR	The evaluation must describe the storage reservoir’s	43-05-01-05. STORAGE	Add language that addresses the federal

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demonstrate to the satisfaction of the Director that the wells will be sited in areas with a suitable geologic system. The owners or operators must demonstrate that the geologic system comprises:	§146.83(a)	mechanisms of geologic confinement, including rock properties, regional pressure gradients, structural features, and adsorption characteristics with regard to the ability of that confinement to prevent migration of carbon dioxide beyond the proposed storage reservoir.	FACILITY PERMIT. Subsection 1 b (2); pg. 10-11	requirement to “demonstrate.”
An injection zone(s) of sufficient areal extent, thickness, porosity, and permeability to receive the total anticipated volume of the carbon dioxide stream;	40 CFR §146.83(a)(1)	(k) <u>Data on the depth, areal extent, thickness, mineralogy, porosity, permeability, and capillary pressure of the injection and confining zone; including facies changes based on field data, which may include geologic cores, outcrop data, seismic surveys, well logs, and names and lithologic descriptions;</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (2) (k); pg. 12	Add language that addresses the “total anticipated volume.” This requirement must also be demonstrated.
Confining zone(s) free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced formation fluids and allow injection at proposed maximum pressures and volumes without initiating or propagating fractures in the confining zone(s).	40 CFR §146.83(a)(2)	(j) <u>The location, orientation, and properties of known or suspected faults and fractures that may transect the confining zone in the area of review, and a determination that they would not interfere with containment;</u>	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (2) (j); pg. 11	Add language that addresses “free of transmissive faults or fractures. This requirement must also be demonstrated.
The Director may require owners or operators of Class VI wells to identify and characterize additional zones that will impede vertical fluid movement, are free of faults and fractures that may interfere with containment, allow for pressure dissipation, and provide additional opportunities for monitoring, mitigation, and remediation.	40 CFR §146.83(b)	(l) <u>Geomechanical information on fractures, stress, ductility, rock strength, and in situ fluid pressures within the confining zone;</u> The above is 43-05-01-05, subsection 1b(2)(l), not (j) as listed in the State Citation column.	43-05-01-05. STORAGE FACILITY PERMIT. Subsection 1 b (2) (j); pg. 12	Add language that addresses the federal requirement that the Director may require.... Add language that addresses the federal requirement, “and provide additional opportunities for monitoring, mitigation, and remediation.” (See text highlighted in red.)
40 CFR §146.84 Area of review and corrective action.				
The area of review is the region surrounding the geologic sequestration project where USDWs may be endangered by the injection activity. The area of review is delineated using computational modeling that accounts for the physical and chemical	40 CFR §146.84(a)	1. “Area of Review” means the region surrounding the <u>geologic sequestration project where underground sources of drinking water may be endangered by the injection activity.</u> <u>a. Predict, using existing site characterization, monitoring</u>	43-05-01-01. DEFINITIONS. Subsection 1; pg. 3 <u>43-05-01-05.1. Area of review and corrective action.</u>	Okay. Confining zone(s)

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
properties of all phases of the injected carbon dioxide stream and is based on available site characterization, monitoring, and operational data.		<p>Formatting retained from original; text moved from far right column unless otherwise noted.</p> <p>and operational data, and computational modeling, the projected lateral and vertical migration of the carbon dioxide plume and its associated pressure front in the subsurface from the commencement of injection activities until the plume movement ceases. The model must:</p> <p>(1) Be based on detailed geologic data collected to characterize the injection zone, confining zone and any additional zones; and anticipated operating data, including injection pressures, rates, and total volumes over the proposed life of the geologic sequestration project;</p> <p>(2) Take into account any geologic heterogeneities, other discontinuities, data quality, and their possible impact on model predictions; and</p> <p>(3) Consider potential migration through faults, fractures, and artificial penetrations.</p>	Subsection 2 a (1) – (3); pg. 16-17	
The owner or operator of a Class VI well must prepare, maintain, and comply with a plan to delineate the area of review for a proposed geologic sequestration project, periodically reevaluate the delineation, and perform corrective action that meets the requirements of this section and is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. As a part of the permit application for approval by the Director, the owner or operator must submit an area of review and corrective action plan that includes the following information:	40 CFR §146.84(b)	1. The storage operator shall prepare, maintain, and comply with a plan to delineate the area of review for a proposed geologic sequestration project, periodically reevaluate the delineation, and perform corrective action that meets the requirements of this section and is acceptable to the commission. As a part of the storage facility permit application, the storage operator shall submit an area of review and corrective action plan that includes the following:	43-05-01-05.1. Area of review and corrective action. Subsection 1: pg. 16	<p>Add language that addresses the federal requirement that the Director approve the permit application.</p> <p>Add language that addresses the federal requirement that the requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. (See text highlighted in red.)</p>
The method for delineating the area of review that meets the requirements of paragraph (c) of this section, including the model to be used, assumptions that will be made, and the site characterization data	40 CFR §146.84(b)(1)	a. The method for delineating the area of review including the model to be used, assumptions that will be made, and the site characterization data on which the model will be based;	43-05-01-05.1. Area of review and corrective action. Subsection 1 a: pg. 16	Okay. Add reference to “paragraph (c).”

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
on which the model will be based;				
A description of:	40 CFR §146.84(b)(2)	<u>b. A description of:</u>	43-05-01-05.1. Area of review and corrective action. Subsection 1 b; pg. 16	Okay.
The minimum fixed frequency, not to exceed five years, at which the owner or operator proposes to reevaluate the area of review;	40 CFR §146.84(b)(2)(i)	<u>(1) The reevaluation date, not to exceed five years, at which the storage operator shall reevaluate the area of review;</u>	43-05-01-05.1. Area of review and corrective action. Subsection 1 b (1); pg. 16	Okay.
The monitoring and operational conditions that would warrant a reevaluation of the area of review prior to the next scheduled reevaluation as determined by the minimum fixed frequency established in paragraph (b)(2)(i) of this section.	40 CFR §146.84(b)(2)(ii)	<u>(2) The monitoring and operational conditions that would warrant a reevaluation of the area of review prior to the next scheduled reevaluation date.</u>	43-05-01-05.1. Area of review and corrective action. Subsection 1 b (2); pg. 16	Okay.
How monitoring and operational data (e.g., injection rate and pressure) will be used to inform an area of review reevaluation; and	40 CFR §146.84(b)(2)(iii)	<u>(3) How monitoring and operational data (e.g., injection rate and pressure) will be used to inform an area of review reevaluation; and</u>	43-05-01-05.1. Area of review and corrective action. Subsection 1 b (3); pg. 16	Okay.
How corrective action will be conducted to meet the requirements of paragraph (d) of this section, including what corrective action will be performed prior to injection and what, if any, portions of the area of review will have corrective action addressed on a phased basis and how the phasing will be determined; how corrective action will be adjusted if there are changes in the area of review; and how site access will be guaranteed for future corrective action.	40 CFR §146.84(b)(2)(iv)	<u>(4) How corrective action will be conducted to meet the requirements of this section, including what corrective action will be performed prior to injection and what, if any, portions of the area of review will have corrective action addressed on a phased basis and how the phasing will be determined; how corrective action will be adjusted if there are changes in the area of review; and how site access will be guaranteed for future corrective action.</u>	43-05-01-05.1. Area of review and corrective action. Subsection 1 b (4); pg. 16	Okay.
Owners or operators of Class VI wells must perform the following actions to delineate the area of review and identify all wells that require corrective action:	40 CFR §146.84(c)	<u>2. The storage operator shall perform the following actions to delineate the area of review and identify all wells that require corrective action:</u>	43-05-01-05.1. Area of review and corrective action. Subsection 2; pg. 16	Okay.

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Predict, using existing site characterization, monitoring and operational data, and computational modeling, the projected lateral and vertical migration of the carbon dioxide plume and formation fluids in the subsurface from the commencement of injection activities until the plume movement ceases, until pressure differentials sufficient to cause the movement of injected fluids or formation fluids into a USDW are no longer present, or until the end of a fixed time period as determined by the Director. The model must:	40 CFR §146.84(c)(1)	<u>a. Predict, using existing site characterization, monitoring and operational data, and computational modeling, the projected lateral and vertical migration of the carbon dioxide plume and its associated pressure front in the subsurface from the commencement of injection activities until the plume movement ceases. The model must:</u>	<u>43-05-01-05.1. Area of review and corrective action.</u> Subsection 2 a; pg. 16	Add language that addresses the federal requirement, “and formation fluids in the subsurface from the commencement of injection activities.” (See text highlighted in red.) Add language that addresses the federal requirement, “or until the end of a fixed time period as determined by the Director. (See text highlighted in red.)
Be based on detailed geologic data collected to characterize the injection zone(s), confining zone(s) and any additional zones; and anticipated operating data, including injection pressures, rates, and total volumes over the proposed life of the geologic sequestration project;	40 CFR §146.84(c)(1)(i)	<u>(1) Be based on detailed geologic data collected to characterize the injection zone, confining zone and any additional zones; and anticipated operating data, including injection pressures, rates, and total volumes over the proposed life of the geologic sequestration project;</u>	<u>43-05-01-05.1. Area of review and corrective action.</u> Subsection 2 a (1); pg. 16	Okay. Confining zone(s).
Take into account any geologic heterogeneities, other discontinuities, data quality, and their possible impact on model predictions; and	40 CFR §146.84(c)(1)(ii)	<u>(2) Take into account any geologic heterogeneities, other discontinuities, data quality, and their possible impact on model predictions; and</u>	<u>43-05-01-05.1. Area of review and corrective action.</u> Subsection 2 a (2); pg. 17	Okay.
Consider potential migration through faults, fractures, and artificial penetrations.	40 CFR §146.84(c)(1)(iii)	<u>(3) Consider potential migration through faults, fractures, and artificial penetrations.</u>	<u>43-05-01-05.1. Area of review and corrective action.</u> Subsection 2 a (3); pg. 17	Okay.
Using methods approved by the Director, identify all penetrations, including active and abandoned wells and underground mines, in the area of review that may penetrate the confining zone(s). Provide a description of each well’s type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require; and	40 CFR §146.84(c)(2)	<u>b. Using methods approved by the commission, identify all penetrations, including active and abandoned wells and underground mines, in the area of review that may penetrate the confining zone. Provide a description of each well’s type, construction, date drilled, location, depth, record of plugging and completion, and any additional information the commission may require; and</u>	<u>43-05-01-05.1. Area of review and corrective action.</u> Subsection 2 b; pg. 17	Okay. Confining zone(s).

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Determine which abandoned wells in the area of review have been plugged in a manner that prevents the movement of carbon dioxide or other fluids that may endanger USDWs, including use of materials compatible with the carbon dioxide stream.	40 CFR §146.84(c)(3)	<u>c. Determine which abandoned wells have been plugged, or operating wells have been constructed in the area of review in a manner that prevents the movement of the injected carbon dioxide or other fluids that may endanger underground sources of drinking water, including use of materials compatible with the carbon dioxide stream.</u>	43-05-01-05.1. Area of review and corrective action. Subsection 2 c; pg. 17	Okay.
Owners or operators of Class VI wells must perform corrective action on all wells in the area of review that are determined to need corrective action, using methods designed to prevent the movement of fluid into or between USDWs, including use of materials compatible with the carbon dioxide stream, where appropriate.	40 CFR §146.84(d)	<u>3. The storage operator shall perform corrective action on all wells in the area of review that are determined to need corrective action, using methods designed to prevent the movement of fluid into or between underground sources of drinking water, including use of materials compatible with the carbon dioxide stream, where appropriate.</u>	43-05-01-05.1. Area of review and corrective action. Subsection 3; pg. 17	Okay.
At the minimum fixed frequency, not to exceed five years, as specified in the area of review and corrective action plan, or when monitoring and operational conditions warrant, owners or operators must:	40 CFR §146.84(e)	<u>4. At the reevaluation date, not to exceed five years, as specified in the area of review and corrective action plan, or when monitoring and operational conditions warrant, the storage operator shall:</u>	43-05-01-05.1. Area of review and corrective action. Subsection 4; pg. 17	Okay.
Reevaluate the area of review in the same manner specified in paragraph (c)(1) of this section;	40 CFR §146.84(e)(1)	<u>a. Reevaluate the area of review in same manner specified in subdivision a of subsection 2 of this section;</u>	43-05-01-05.1. Area of review and corrective action. Subsection 4 a; pg. 17	Okay.
Identify all wells in the reevaluated area of review that require corrective action in the same manner specified in paragraph (c) of this section;	40 CFR §146.84(e)(2)	<u>b. Identify all wells in the reevaluated area of review that require corrective action;</u>	43-05-01-05.1. Area of review and corrective action. Subsection 4 b; pg. 17	Okay. Add language, “in the same manner.” (See text highlighted in red.)
Perform corrective action on wells requiring corrective action in the reevaluated area of review in the same manner specified in paragraph (d) of this section; and	40 CFR §146.84(e)(3)	<u>c. Perform corrective action on wells requiring corrective action in the reevaluated area of review; and</u>	43-05-01-05.1. Area of review and corrective action. Subsection 4 c; pg. 17	Okay. Add language, “in the same manner.” (See text highlighted in red.)

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
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Submit an amended area of review and corrective action plan or demonstrate to the Director through monitoring data and modeling results that no amendment to the area of review and corrective action plan is needed. Any amendments to the area of review and corrective action plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at §§144.39 or 144.41 of this chapter, as appropriate.	40 CFR §146.84(e)(4)	<u>d. Submit an amended area of review and corrective action plan or demonstrate to the commission through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the plan are subject to the commission’s approval, must be incorporated into the permit, and are subject to the permit modification requirements.</u>	<u>43-05-01-05.1. Area of review and corrective action.</u> Subsection 4 d; pg. 17	Replace “plan” with “area of review and corrective action plan.” (See text highlighted in red.)
The emergency and remedial response plan (as required by §146.94) and the demonstration of financial responsibility (as described by §146.85) must account for the area of review delineated as specified in paragraph (c)(1) of this section or the most recently evaluated area of review delineated under paragraph (e) of this section, regardless of whether or not corrective action in the area of review is phased.	40 CFR §146.84(f)	<u>5. The emergency and remedial response plan and the demonstration of financial responsibility must account for the area of review, regardless of whether or not corrective action in the area of review is phased.</u>	<u>43-05-01-05.1. Area of review and corrective action.</u> Subsection 5; pg. 17	Okay.
All modeling inputs and data used to support area of review reevaluations under paragraph (e) of this section shall be retained for 10 years.	40 CFR §146.84(g)	<u>6. All modeling inputs and data used to support area of review delineations and reevaluations must be retained until project completion. Upon project completion the storage operator shall deliver the records to the commission.</u>	<u>43-05-01-05.1. Area of review and corrective action.</u> Subsection 6; pg. 18	The modeling inputs and data must be kept for at least 10 years. Either discuss this in the program description or modify the state requirement.
40 CFR §146.85 Financial responsibility.				
The owner or operator must demonstrate and maintain financial responsibility as determined by the Director that meets the following conditions:	40 CFR §146.85(a)	<u>1. The storage operator shall demonstrate and maintain financial responsibility that meets the following conditions:</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1; pg. 23	Add language that addresses “as determined by the Commission.” (See text highlighted in red.)
The financial responsibility instrument(s) used must be from the following list of qualifying instruments:	40 CFR §146.85(a)(1)	<u>a. The qualifying financial responsibility instrument used must be from the following list of qualifying instruments:</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 a; pg. 23	Okay.

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Trust Funds	40 CFR §146.85(a)(1)(i)	<u>(1) Trust funds;</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 a (1); pg. 23	Okay.
Surety Bonds	40 CFR §146.85(a)(1)(ii)	<u>(2) Surety or cash bonds;</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 a (2); pg. 23	Okay.
Letter of Credit	40 CFR §146.85(a)(1)(iii)	<u>(3) Letter of credit;</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 a (3); pg. 23	Okay.
Insurance	40 CFR §146.85(a)(1)(iv)	<u>(4) Insurance;</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 a (4); pg. 23	Okay.
Self Insurance (i.e., Financial Test and Corporate Guarantee)	40 CFR §146.85(a)(1)(v)	<u>(5) Self insurance (i.e., financial test and corporate guarantee);</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 a (5); pg. 23	Okay.
Escrow Account	40 CFR §146.85(a)(1)(vi)	<u>(6) Escrow account; or</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 a (6); pg. 23	Okay.
Any other instrument(s) satisfactory to the Director	40 CFR §146.85(a)(1)(vii)	<u>(7) Any other instrument the commission finds satisfactory.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 a (7); pg. 23	Okay.
The qualifying instrument(s) must be sufficient to cover the cost of:	40 CFR §146.85(a)(2)	<u>b. The qualifying financial responsibility instrument must be sufficient to cover the cost of:</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 b; pg. 23	Okay.
Corrective action (that meets the requirements of §146.84);	40 CFR §146.85(a)(2)(i)	<u>(1) Corrective action that meets the requirements of section 43-05-01-05.1;</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u>	Okay.

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			Subsection 1 b (1); pg. 23	
Injection well plugging (that meets the requirements of §146.92);	40 CFR §146.85(a)(2)(ii)	<u>(2) Injection well plugging that meets the requirements of section 43-05-01-11.5;</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 b (2); pg. 23	Okay.
Post injection site care and site closure (that meets the requirements of §146.93); and	40 CFR §146.85(a)(2)(iii)	<u>(3) Post injection site care and facility closure that meets the requirements of section 43-05-01-19; and</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 b (3); pg. 23	Okay.
Emergency and remedial response (that meets the requirements of §146.94).	40 CFR §146.85(a)(2)(iv)	<u>(4) Emergency and remedial response that meets the requirements of section 43-05-01-13.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 b (4); pg. 23	Okay.
The financial responsibility instrument(s) must be sufficient to address endangerment of underground sources of drinking water.	40 CFR §146.85(a)(3)	<u>c. The qualifying financial responsibility instrument must be sufficient to remediate any contamination of underground sources of drinking water.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 c; pg. 24	Replace “contamination” with “endangerment.” “Contamination” is less stringent than federal requirement “endangerment.” (See text highlighted in red.)
The qualifying financial responsibility instrument(s) must comprise protective conditions of coverage.	40 CFR §146.85(a)(4)	<u>d. The qualifying financial responsibility instrument must comprise protective conditions of coverage.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 d; pg. 24	Okay.
Protective conditions of coverage must include at a minimum cancellation, renewal, and continuation provisions, specifications on when the provider becomes liable following a notice of cancellation if there is a failure to renew with a new qualifying financial instrument, and requirements for the provider to meet a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.	40 CFR §146.85(a)(4)(i)	<u>(1) Protective conditions of coverage must include at a minimum cancellation, renewal, and continuation provisions; specifications on when the provider becomes liable following a notice of cancellation if there is a failure to renew with a new qualifying financial responsibility instrument; and requirements for the provider to meet a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 d (1); pg. 24	Okay.
Cancellation – for purposes of this part, an owner or operator must provide that their financial mechanism	40 CFR §146.85(a)(4)(i)(<u>(2) Cancellation. The storage operator shall provide that its financial mechanism may not cancel, terminate, or fail to</u>	<u>43-05-01-09.1. FINANCIAL</u>	Okay.

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may not cancel, terminate or fail to renew except for failure to pay such financial instrument. If there is a failure to pay the financial instrument, the financial institution may elect to cancel, terminate, or fail to renew the instrument by sending notice by certified mail to the owner or operator and the Director. The cancellation must not be final for 120 days after receipt of cancellation notice. The owner or operator must provide an alternate financial responsibility demonstration within 60 days of notice of cancellation, and if an alternate financial responsibility demonstration is not acceptable (or possible), any funds from the instrument being cancelled must be released within 60 days of notification by the Director.	A)	<u>renew except for failure to pay such financial instrument. If there is a failure to pay the financial instrument, the financial institution may elect to cancel, terminate, or fail to renew the instrument by sending notice by certified mail to the storage operator and the commission. The cancellation must not be final for 120 days after receipt of cancellation notice. The storage operator shall provide an alternate qualifying financial responsibility demonstration within 60 days of notice of cancellation, and if it is not acceptable (or possible), any funds from the instrument being cancelled must be released to the commission within 60 days of notification by the commission.</u>	<u>RESPONSIBILITY.</u> Subsection 1 d (2); pg. 24	
Renewal – for purposes of this part, owners or operators must renew all financial instruments, if an instrument expires, for the entire term of the geologic sequestration project. The instrument may be automatically renewed as long as the owner or operator has the option of renewal at the face amount of the expiring instrument. The automatic renewal of the instrument must, at a minimum, provide the holder with the option of renewal at the face amount of the expiring financial instrument.	40 CFR §146.85(a)(4)(i)(B)	<u>(3) Renewal. The storage operator shall renew all qualifying financial responsibility instruments, if an instrument expires, for the entire term of the geologic sequestration project. The instrument must be automatically renewed as long as the storage operator has the option of renewal at the face amount of the expiring instrument. The automatic renewal must, at a minimum, provide the storage operator with the option of renewal at the face amount of the expiring financial instrument.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 d (3); pg. 24	Okay.
Cancellation, termination, or failure to renew may not occur and the financial instrument will remain in full force and effect in the event that on or before the date of expiration: the Director deems the facility abandoned; or the permit is terminated or revoked or a new permit is denied; or closure is ordered by the Director or a U.S. district court or other court of competent jurisdiction; or the owner or operator is	40 CFR §146.85(a)(4)(i)(C)	<u>(4) Cancellation, termination, or failure to renew may not occur and the financial instrument will remain in full force and effect in the event that on or before the date of expiration: the permit is terminated or revoked or a new permit is denied; or closure is ordered by the commission or a United States district court or other court of competent jurisdiction; or the storage operator is named as debtor in a voluntary or involuntary proceeding under Title 11</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1 d (4); pg. 24	Add language, “the Director deems the facility abandoned;” (See text highlighted in red.)

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
named as debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code; or the amount due is paid.		(Bankruptcy), United States Code; or the amount due is paid.		
The qualifying financial responsibility instrument(s) must be approved by the Director.	40 CFR §146.85(a)(5)	e. <u>The qualifying financial responsibility instrument is subject to the commission's approval.</u>	43-05-01-09.1. <u>FINANCIAL RESPONSIBILITY.</u> Subsection 1 e; pg. 24	Okay.
The Director shall consider and approve the financial responsibility demonstration for all the phases of the geologic sequestration project prior to issue a Class VI permit (§146.82).	40 CFR §146.85(a)(5)(i)	(1) <u>The commission shall approve the qualifying financial responsibility demonstration for all the phases of the geologic sequestration project prior to issuing a storage facility permit.</u>	43-05-01-09.1. <u>FINANCIAL RESPONSIBILITY.</u> Subsection 1 e (1); pg. 24	Add "consider and approve."
The owner or operator must provide any updated information related to their financial responsibility instrument(s) on an annual basis and if there are any changes, the Director must evaluate, within a reasonable time, the financial responsibility demonstration to confirm that the instrument(s) used remain adequate for use. The owner or operator must maintain financial responsibility requirements regardless of the status of the Director's review of the financial responsibility demonstration.	40 CFR §146.85(a)(5)(ii)	(2) <u>The storage operator shall provide any updated information related to its qualifying financial responsibility instrument on an annual basis and, if there are any changes, the commission must evaluate, within a reasonable time, the qualifying financial responsibility demonstration to confirm that the instrument used remains adequate. The storage operator shall maintain financial responsibility requirements regardless of the status of the commission's review of the financial responsibility demonstration.</u>	43-05-01-09.1. <u>FINANCIAL RESPONSIBILITY.</u> Subsection 1 e (2); pg. 25	Okay.
The Director may disapprove the use of a financial instrument if he determines that it is not sufficient to meet the requirements of this section.	40 CFR §146.85(a)(5)(iii)	(3) <u>The commission may disapprove the use of a financial instrument if it determines that it is not sufficient to meet the requirements of this section.</u>	43-05-01-09.1. <u>FINANCIAL RESPONSIBILITY.</u> Subsection 1 e (3); pg. 25	Okay.
The owner or operator may demonstrate financial responsibility by using one or multiple qualifying financial instruments for specific phases of the geologic sequestration project.	40 CFR §146.85(a)(6)	f. <u>Upon the commission's approval, the storage operator may demonstrate financial responsibility by using one or multiple qualifying financial responsibility instruments for specific phases of the geologic sequestration project.</u>	43-05-01-09.1. <u>FINANCIAL RESPONSIBILITY.</u> Subsection 1f; pg. 25	Okay.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
In the event that the owner or operator combines more than one instrument for a specific geologic sequestration phase (e.g., well plugging), such combination must be limited to instruments that are not based on financial strength or performance (i.e., self insurance or performance bond), for example trust funds, surety bonds guaranteeing payment into a trust fund, letters of credit, escrow account, and insurance. In this case, it is the combination of mechanisms, rather than the single mechanism, which must provide financial responsibility for an amount at least equal to the current cost estimate.	40 CFR §146.85(a)(6)(i)	<u>If the storage operator combines more than one instrument for a specific geologic sequestration phase (e.g., well plugging), such combination must be limited to instruments that are not based on financial strength or performance (i.e., self insurance or performance bond), for example trust funds, surety bonds guaranteeing payment into a trust fund, letters of credit, escrow account, and insurance. In this case, it is the combination of mechanisms, rather than the single mechanism, which must provide financial responsibility for an amount at least equal to the current cost estimate.</u>	43-05-01-09.1. FINANCIAL RESPONSIBILITY. Subsection 1f, second paragraph; pg. 25	Okay.
When using a third-party instrument to demonstrate financial responsibility, the owner or operator must provide a proof that the third-party providers either have passed financial strength requirements based on credit ratings; or has met a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.	40 CFR §146.85(a)(6)(ii)	<u>g. When using a third-party instrument to demonstrate financial responsibility, the storage operator shall provide a proof that the third-party providers either have passed financial strength requirements based on credit ratings; or has met a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.</u>	43-05-01-09.1. FINANCIAL RESPONSIBILITY. Subsection 1g; pg. 25	Okay.
An owner or operator using certain types of third party instruments must establish a standby trust to enable EPA to be party to the financial responsibility agreement without EPA being the beneficiary of any funds. The standby trust fund must be used along with other financial responsibility instruments (e.g., surety bonds, letters of credit, or escrow accounts) to provide a location to place funds if needed.	40 CFR §146.85(a)(6)(iii)	<u>h. The storage operator using certain types of third party instruments shall establish a standby trust to enable the commission to be party to the financial responsibility agreement without the commission being the beneficiary of any funds. The standby trust fund must be used along with other qualifying financial responsibility instruments (e.g., surety bonds, letters of credit, or escrow accounts) to provide a location to place funds if needed.</u>	43-05-01-09.1. FINANCIAL RESPONSIBILITY. Subsection 1h; pg. 25	Replace “commission” with “EPA.” (See text highlighted in red.)
An owner or operator may deposit money to an escrow account to cover financial responsibility requirements; this account must segregate funds sufficient to cover estimated costs for Class VI (geologic sequestration) financial responsibility from	40 CFR §146.85(a)(6)(iv)	<u>j. If the storage operator uses an escrow account to satisfy its financial responsibility requirements, the account must segregate funds sufficient to cover estimated costs for geologic sequestration financial responsibility from other accounts and uses.</u>	43-05-01-09.1. FINANCIAL RESPONSIBILITY. Subsection 1j; pg. 25	Okay.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
other accounts and uses.		Formatting retained from original; text moved from far right column unless otherwise noted.		
An owner or operator or its guarantor may use self insurance to demonstrate financial responsibility for geologic sequestration projects. In order to satisfy this requirement the owner or operator must meet a Tangible Net Worth of an amount approved by the Director, have a Net working capital and tangible net worth each at least six times the sum of the current well plugging, post injection site care and site closure cost, have assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current well plugging, post injection site care and site closure cost, and must submit a report of its bond rating and financial information annually. In addition the owner or operator must either: have a bond rating test of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or meet all of the following five financial ratio thresholds: a ratio of total liabilities to net worth less than 2.0; a ratio of current assets to current liabilities greater than 1.5; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; a ratio of current assets minus current liabilities to total assets greater than - 0.1; and a net profit (revenues minus expenses) greater than 0.	40 CFR §146.85(a)(6)(v)	k. If the storage operator or its guarantor uses self insurance to satisfy its financial responsibility requirements, the storage operator shall meet a tangible net worth of an amount approved by the commission; have a net working capital and tangible net worth each at least six times the sum of the current well plugging, post injection site care and facility closure cost; have assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current well plugging, post injection site care and facility closure cost; and must submit a report of its bond rating and financial information annually. In addition the storage operator shall either: have a bond rating test of AAA, AA, A, or BBB as issued by Standard & Poor's, or Aaa, Aa, A, or Baa as issued by Moody's, or an equivalent rating by any other nationally recognized statistical rating organization, as defined and approved by the United States securities and exchange commission; or meet all of the following five financial ratio thresholds: a ratio of total liabilities to net worth less than 2.0; a ratio of current assets to current liabilities greater than 1.5; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; a ratio of current assets minus current liabilities to total assets greater than -0.1; and a net profit (revenues minus expenses) greater than 0.	43-05-01-09.1. FINANCIAL RESPONSIBILITY. Subsection 1k; pg. 26	Allowing “an equivalent rating by any other nationally recognized statistical rating organization, as defined and approved by the United States securities and exchange commission;” is less stringent than the federal requirements.
An owner or operator who is not able to meet corporate financial test criteria may arrange a corporate guarantee by demonstrating that its corporate parent meets the financial test requirements on its behalf. The parent's demonstration that it meets the financial test requirement is insufficient if	40 CFR §146.85(a)(6)(vi)	l. The storage operator who is not able to meet corporate financial test criteria in the preceding provision, may arrange a corporate guarantee by demonstrating that its corporate parent meets the financial test requirements on its behalf. The parent's demonstration that it meets the financial test requirement is insufficient if it has not also	43-05-01-09.1. FINANCIAL RESPONSIBILITY. Subsection 1l; pg. 26	Okay.

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
it has not also guaranteed to fulfill the obligations for the owner or operator.		<u>guaranteed to fulfill the obligations for the storage operator.</u>		
An owner or operator may obtain an insurance policy to cover the estimated costs of geologic sequestration activities requiring financial responsibility. This insurance policy must be obtained from a third party provider.	40 CFR §146.85(a)(6)(vii)	<u>m. If the storage operator uses an insurance policy to satisfy its financial responsibility requirements, the insurance policy must be obtained from a third party provider.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 1m; pg. 26	Okay.
The requirement to maintain adequate financial responsibility and resources is directly enforceable regardless of whether the requirement is a condition of the permit.	40 CFR §146.85(b)	<u>2. The storage operator shall maintain adequate qualifying financial responsibility.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 2; pg. 26	Add language that addresses the federal requirement to maintain adequate financial responsibility is directly enforceable regardless of whether the requirement is a condition of the permit.
The owner or operator must maintain financial responsibility and resources until:	40 CFR §146.85(b)(1)	<u>a. The storage operator shall maintain qualifying financial responsibility and resources until the commission approves project completion.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 2 a; pg. 26	Okay. Questions on definition of “project completion” and the transfer of the site from the storage operator to the Commission.
The Director receives and approves the completed post-injection site care and site closure plan; and	40 CFR §146.85(b)(1)(i)	<u>8. Before project completion, the closure period ends and at a time set by the commission, the storage operator shall provide a final assessment of the stored carbon dioxide’s location, characteristics, and its future movement and location within the storage reservoir.</u>	<u>43-05-01-19. POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> Subsection 8; pg.51	Add language that explains that the Director receives and approves the post-injection site care and site closure plan.
The Director approves site closure.	40 CFR §146.85(b)(1)(ii)	<u>1. After carbon dioxide injections into a reservoir end and upon application by the storage operator, the commission shall consider issuing a certificate of project completion.</u>	NDCC 38-22-17. Certificate of project completion - Release - Transfer of title and custody. Subsection 1; pg. 45	
The owner or operator may be released from a financial instrument in the following circumstances:	40 CFR §146.85(b)(2)	<u>b. The storage operator may be released from a financial instrument in the following circumstances:</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 2 b; pg. 26	Okay.

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
The owner or operator has completed the phase of the geologic sequestration project for which the financial instrument was required and has fulfilled all its financial obligations as determined by the Director, including obtaining financial responsibility for the next phase of the GS project, if required; or	40 CFR §146.85(b)(2)(i)	<u>(1) The storage operator has completed the phase of the geologic sequestration project for which the financial instrument was required and has fulfilled all its financial obligations as determined by the commission, including obtaining financial responsibility for the next phase of the geologic sequestration project, if required;</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 2 b (1); pg. 26	Okay.
The owner or operator has submitted a replacement financial instrument and received written approval from the Director accepting the new financial instrument and releasing the owner or operator from the previous financial instrument.	40 CFR §146.85(b)(2)(ii)	<u>(2) The storage operator has submitted a replacement financial instrument and received written approval from the commission accepting the new financial instrument and releasing the storage operator from the previous financial instrument; or</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 2 b (2); pg. 26-27	Okay.
The owner or operator must have a detailed written estimate, in current dollars, of the cost of performing corrective action on wells in the area of review, plugging the injection well(s), post-injection site care and site closure, and emergency and remedial response.	40 CFR §146.85(c)	<u>3. The storage operator shall have a detailed written estimate, in current dollars, of the cost of performing corrective action on wells in the area of review, plugging the injection well, post-injection site care and facility closure, and emergency and remedial response.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 3; pg. 27	Okay.
The cost estimate must be performed for each phase separately and must be based on the costs to the regulatory agency of hiring a third party to perform the required activities. A third party is a party who is not within the corporate structure of the owner or operator.	40 CFR §146.85(c)(1)	<u>a. The cost estimate must be performed for each phase separately and must be based on the costs to the commission of hiring a third party to perform the required activities. A third party is a party who is not within the corporate structure of the storage operator;</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 3 a; pg. 27	Okay.
During the active life of the geologic sequestration project, the owner or operator must adjust the cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with paragraph (a) of this section and provide this adjustment to the Director. The owner or operator must also provide to the Director written updates of adjustments to the cost estimate within 60 days of any amendments to	40 CFR §146.85(c)(2)	<u>b. During the active life of the geologic sequestration project, the storage operator shall adjust the cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument used to comply with this section and provide this adjustment to the commission. The storage operator shall also provide to the commission written updates of adjustments to the cost estimate within 60 days of any amendments to the area of review and corrective action plan, the injection well</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 3 b; pg. 27	Okay.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
the area of review and corrective action plan (§146.84), the injection well plugging plan (§146.92), the post-injection site care and site closure plan (§146.93), and the emergency and remedial response plan (§146.94).		<u>plugging plan, the post-injection site care and facility closure plan, and the emergency and remedial response plan;</u>		
The Director must approve any decrease or increase to the initial cost estimate. During the active life of the geologic sequestration project, the owner or operator must revise the cost estimate no later than 60 days after the Director has approved the request to modify the area of review and corrective action plan (§146.84), the injection well plugging plan (§146.92), the post-injection site care and site closure plan (§146.93), and the emergency and response plan (§146.94), if the change in the plan increases the cost. If the change to the plans decreases the cost, any withdrawal of funds must be approved by the Director. Any decrease to the value of the financial assurance instrument must first be approved by the Director. The revised cost estimate must be adjusted for inflation as specified at paragraph (c)(2) of this section.	40 CFR §146.85(c)(3)	<u>c. Any decrease or increase to the initial cost estimate is subject to the commission’s approval. During the active life of the geologic sequestration project, the storage operator shall revise the cost estimate no later than 60 days after the commission has approved the request to modify the area of review and corrective action plan, the injection well plugging plan, the post-injection site care and facility closure plan, and the emergency and response plan, if the change in the plan increases the cost. If the change to the plans decreases the cost, any withdrawal of funds is subject to the commission’s approval. Any decrease to the value of the financial responsibility instrument must first be approved by the commission. The revised cost estimate must be adjusted for inflation; and</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 3 c; pg. 27	Okay. Refer to paragraph (c)(2).
Whenever the current cost estimate increases to an amount greater than the face amount of a financial instrument currently in use, the owner or operator, within 60 days after the increase, must either cause the face amount to be increased to an amount at least equal to the current cost estimate and submit evidence of such increase to the Director, or obtain other financial responsibility instruments to cover the increase. Whenever the current cost estimate decreases, the face amount of the financial assurance	40 CFR §146.85(c)(4)	<u>d. Whenever the current cost estimate increases to an amount greater than the face amount of a financial instrument currently in use, the storage operator, within 60 days after the increase, shall either cause the face amount to be increased to an amount at least equal to the current cost estimate and submit evidence of such increase to the commission, or obtain other qualifying financial responsibility instruments to cover the increase. Whenever the current cost estimate decreases, the face amount of the financial assurance instrument may be reduced to the</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 3 d; pg. 27	Okay.

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instrument may be reduced to the amount of the current cost estimate only after the owner or operator has received written approval from the Director.		<u>amount of the current cost estimate only after the storage operator has received written approval from the commission.</u>		
The owner or operator must notify the Director by certified mail of adverse financial conditions such as bankruptcy that may affect the ability to carry out injection well plugging and post-injection site care and site closure.	40 CFR §146.85(d)	<u>4. The storage operator shall notify the commission by certified mail of adverse financial conditions that may affect the operator's ability to carry out its obligations under state and federal law.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 4; pg. 28	Okay. May add more specific language to include injection well plugging and post-injection site care and site closure.
In the event that the owner or operator or the third party provider of a financial responsibility instrument is going through a bankruptcy, the owner or operator must notify the Director by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within 10 days after commencement of the proceeding.	40 CFR §146.85(d)(1)	<u>a. If the storage operator or the third party provider of a qualifying financial responsibility instrument is named as the debtor in a bankruptcy proceeding, the notice to the commission must be made within 10 days after commencement of the proceeding;</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 4 a; pg. 28	Okay.
A guarantor of a corporate guarantee must make such a notification to the Director if he/she is named as debtor, as required under the terms of the corporate guarantee.	40 CFR §146.85(d)(2)	<u>b. A guarantor of a corporate guarantee shall make the notification required in subdivision a of this subsection if the guarantor is named as debtor, as required under the terms of the corporate guarantee; and</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 4 b; pg. 28	Okay.
An owner or operator who fulfills the requirements of paragraph (a) of this section by obtaining a trust fund, surety bond, letter of credit, escrow account, or insurance policy will be deemed to be without the required financial assurance in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee of the institution issuing the trust fund, surety bond, letter of credit,	40 CFR §146.85(d)(3)	<u>c. The storage operator who fulfills its financial responsibility requirements by obtaining a trust fund, surety bond, letter of credit, escrow account, or insurance policy, will be deemed to be without the required financial assurance in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee of the institution issuing the trust fund, surety bond, letter of credit, escrow account, or insurance policy. The storage</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 4 c; pg. 28	Okay.

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escrow account, or insurance policy. The owner or operator must establish other financial assurance within 60 days after such an event.		<u>operator shall establish other financial assurance within 60 days after such an event.</u>		
The owner or operator must provide an adjustment of the cost estimate to the Director within 60 days of notification by the Director, if the Director determines during the annual evaluation of the qualifying financial responsibility instrument(s) that the most recent demonstration is no longer adequate to cover the cost of corrective action (as required by §146.84), injection well plugging (as required by §146.92), post-injection site care and site closure (as required by §146.93), and emergency and remedial response (as required by §146.94).	40 CFR §146.85(e)	The storage operator shall provide an adjustment of the cost estimate to the commission within 60 days of notification by the commission, if the commission determines during the annual evaluation of the qualifying financial responsibility instrument that the most recent demonstration is no longer adequate to cover the operator's obligations under state and federal law.	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 5; pg. 28	Okay.
The Director must approve the use and length of pay-in-periods for trust funds or escrow accounts.	40 CFR §146.85(f)	<u>6. The use and length of pay-in-periods for trust funds or escrow accounts are subject to the commission's approval. The storage operator may make periodic deposits into a trust fund or escrow account throughout the operational period in order to ensure sufficient funds are available to carry out the required activities on the date on which they may occur. The commission shall take into account project-specific risk assessments, projected timing of activities (e.g., post-injection site care), and interest accumulation in determining whether sufficient funds are available to carry out the required activities.</u>	<u>43-05-01-09.1. FINANCIAL RESPONSIBILITY.</u> Subsection 6; pg. 28	Okay.
40 CFR §146.86 Injection well construction requirements.				
<i>General.</i> The owner or operator must ensure that all Class VI wells are constructed and completed to:	40 CFR §146.86(a)	<u>1. The storage operator shall ensure that all injection wells are constructed and completed to</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u>	Okay.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
		Formatting retained from original; text moved from far right column unless otherwise noted.		
			Subsection 1, first part of the first sentence; pg. 29	
Prevent the movement of fluids into or between USDWs or into any unauthorized zones;	40 CFR §146.86(a)(1)	<u>prevent movement of the carbon dioxide stream or fluids into underground sources of drinking water or outside the storage reservoir.</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 1, first sentence; pg. 29	Add “or between” before “underground sources of drinking water. Add “or into any unauthorized zones” after “underground sources of drinking water.”
Permit the use of appropriate testing devices and workover tools; and	40 CFR §146.86(a)(2)	<u>11.40. All wellhead components, including the casinghead and tubing head, valves, and fittings, must be made of steel having operating pressure ratings sufficient to exceed the maximum injection pressures computed at the wellhead and to withstand the corrosive nature of carbon dioxide. Each flow line connected to the wellhead must be equipped with a manually operated positive shutoff valve located on or near the wellhead.</u> <u>13.42. All injection wells must have at all times an accurate, operating pressure gauge or pressure recording device. Gauges must be calibrated as required by the commission and evidence of such calibration must be available to the commission upon request</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 11 and 13; pg. 31	43-05-01-11 does not address the requirement at §146.82(a)(2). Add language that addresses the federal requirements.
Permit continuous monitoring of the annulus space between the injection tubing and long string casing.	40 CFR §146.86(a)(3)	<u>a. Continuous recording devices to monitor the injection pressure; the rate, volume or mass, and temperature of the carbon dioxide stream; and the pressure on the annulus between the tubing and the long string casing and annulus fluid volume; and</u>	43-05-01-11.3 <u>Injection well operating requirements.</u> Subsection 5 a; pg. 36	Add language that addresses monitoring of the annulus space between the injection tubing and long string casing.
<i>Casing and Cementing of Class VI Wells.</i>	40 CFR §146.86(b)		N/A	Okay.
Casing and cement or other materials used in the construction of each Class VI well must have	40 CFR	<u>The casing and cement or other materials used in the construction of each new injection well must be designed</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL</u>	

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
sufficient structural strength and be designed for the life of the geologic sequestration project. All well materials must be compatible with fluids with which the materials may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director. The casing and cementing program must be designed to prevent the movement of fluids into or between USDWs. In order to allow the Director to determine and specify casing and cementing requirements, the owner or operator must provide the following information:	§ 146.86(b)(1)	<p>for the well's life expectancy.</p> <p><u>5.4.</u> All cements used in the cementing of casings in injection and subsurface observation wells must be of sufficient quality to maintain well integrity in the carbon dioxide injection environment.</p> <p><u>6.5.</u> All casings must meet the standards specified in either of the following documents, which are hereby adopted by reference:</p> <p>a. The most recent American petroleum institute bulletin on performance properties of casing, tubing, and drill pipe;</p> <p>b. Specification for casing and tubing (United States customary units), American petroleum institute specification 5CT, as published by the American petroleum institute in October 1998;</p> <p>c. North Dakota Administrative Code Section 43-02-03-21; or</p> <p>d. Other casing as approved by the commission.</p> <p><u>7.6.</u> All casings used in new wells must be new casing or reconditioned casing of a quality equivalent to new casing and that has been pressure-tested in accordance with the requirements of subsection <u>56</u>.</p> <p><u>10.9.</u> All tubing strings must meet the standards contained in subsection <u>56</u>.</p> <p><u>12.44.</u> All packers, packer elements, or similar equipment critical to the containment of carbon dioxide must be of a quality to withstand exposure to carbon dioxide.</p>	<p><u>CONSTRUCTION AND COMPLETION STANDARDS.</u></p> <p>Subsection 1, first paragraph, second sentence; pg. 29</p> <p>43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u></p> <p>Subsection 5,6 a through d, 7, 10, and 12; pg. 30-31</p>	<p>5. Okay.</p> <p>6. Okay.</p> <p>a. Okay.</p> <p>b. Remove "October 1998" or be less specific</p> <p>c. Okay.</p> <p>d. "other comparable casing"</p> <p>7. Okay.</p> <p>10. Okay.</p> <p>12. Okay</p> <p>Add language to address the federal requirements that the casing and cementing program must be designed to prevent the movement of fluids into or between USDWs. In order to allow the Director to determine and specify casing and cementing requirements, the owner or operator must</p>

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				provide the following info:
Depth to the injection zone(s);	40 CFR §146.86(b)(1)(i)	<u>a. Depth to the injection zone;</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 1a; pg. 29	Okay.
Injection pressure, external pressure, internal pressure, and axial loading;	40 CFR §146.86(b)(1)(ii)	<u>b. Injection pressure, external pressure, internal pressure, and axial loading;</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 1b; pg. 29	Okay.
Hole size;	40 CFR §146.86(b)(1)(iii)	<u>c. Hole size;</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 1c; pg. 29	Okay.
Size and grade of all casing strings (wall thickness, external diameter, nominal weight, length, joint specification, and construction material);	40 CFR §146.86(b)(1)(iv)	<u>d. Size and grade of all casing strings (wall thickness, external diameter, nominal weight, length, joint specification, and construction material);</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 1d; pg. 29	Okay.
Corrosiveness of the carbon dioxide stream and formation fluids;	40 CFR §146.86(b)(1)(v)	<u>e. Corrosiveness of the carbon dioxide stream and formation fluids;</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u>	Okay.

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			Subsection 1e; pg. 29	
Down-hole temperatures;	40 CFR §146.86(b)(1)(vi)	<u>f. Down-hole temperatures;</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 1f; pg. 29	Okay.
Lithology of injection and confining zone(s);	40 CFR §146.86(b)(1)(vii)	<u>g. Lithology of injection and confining zone;</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 1g; pg. 29	Okay. Confining zone(s).
Type or grade of cement and cement additives; and	40 CFR §146.86(b)(1)(viii)	<u>h. Type or grade of cement and cement additives; and</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 1h; pg. 29	Okay.
Quantity, chemical composition, and temperature of the carbon dioxide stream.	40 CFR §146.86(b)(1)(ix)	<u>i. Quantity, chemical composition, and temperature of the carbon dioxide stream.</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 1i; pg. 29	Okay.
Surface casing must extend through the base of the lowermost USDW and be cemented to the surface through the use of a single or multiple strings of casing and cement.	40 CFR §146.86(b)(2)	<u>2.4. Surface casing in all newly drilled carbon dioxide injection and subsurface observation wells drilled below the underground source of drinking water must be set fifty feet [15.24 meters] below the base of the Fox Hills formation and cemented pursuant to section 43-02-03-21.</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u>	Fox Hills is not the lowermost USDW.

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
			Subsection 2; pg. 30	
At least one long string casing, using a sufficient number of centralizers, must extend to the injection zone and must be cemented by circulating cement to the surface in one or more stages.	40 CFR §146.86(b)(3)	<u>3.2--The long string casing in all injection and subsurface observation wells must be cemented pursuant to section 43-02-03-21. Sufficient cement must be used on the long string casing to fill the annular space behind the casing to the surface of the ground. The long string casing must extend to the injection zone.</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 3; pg. 30	Add language that addresses using a sufficient number of centralizers and language that addresses the requirement that long string casing must be cemented by circulating cement to the surface in one or more stages.
Circulation of cement may be accomplished by staging. The Director may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the owner or operator can demonstrate by using logs that the cement does not allow fluid movement behind the well bore.	40 CFR §146.86(b)(4)	<u>Circulation of cement may be accomplished by staging. The commission may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the storage operator can demonstrate by using logs that the cement does not allow fluid movement behind the well bore.</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 5, second sentence; pg. 30	Okay.
Cement and cement additives must be compatible with the carbon dioxide stream and formation fluids and of sufficient quality and quantity to maintain integrity over the design life of the geologic sequestration project. The integrity and location of the cement shall be verified using technology capable of evaluating cement quality radially and identifying the location of channels to ensure that USDWs are not endangered.	40 CFR §146.86(b)(5)	<u>54--All cements used in the cementing of casings in injection and subsurface observation wells must be of sufficient quality to maintain well integrity in the carbon dioxide injection environment.</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 5, first sentence; pg. 30	Add language that addresses the design life, verification of cement quality, and identifying location of channels to ensure that USDWs are not endangered.
<i>Tubing and packer.</i>	40 CFR §146.86(c)		N/A	Okay.
Tubing and packer materials used in the construction of each Class VI well must be compatible with fluids with which the materials may be expected to come into contact and must meet or exceed standards	40 CFR §146.86(c)(1)	<u>12.44--All packers, packer elements, or similar equipment critical to the containment of carbon dioxide must be of a quality to withstand exposure to carbon dioxide.</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION</u>	Add language that addresses the federal requirements that the tubing & packer materials must meet or exceed standards by API, ASTM International, or comparable

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developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director.			STANDARDS. Subsection 12; pg. 31	standards.
All owners or operators of Class VI wells must inject fluids through tubing with a packer set at a depth opposite a cemented interval at the location approved by the Director.	40 CFR §146.86(c)(2)	<u>9.8–All injection wells must be completed with and injection must be through tubing and packer.</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 9, first sentence; pg. 31	Add language that addresses the federal requirements regarding where the tubing and packer are set.
In order for the Director to determine and specify requirements for tubing and packer, the owner or operator must submit the following information:	40 CFR §146.86(c)(3)	<u>In order for the commission to determine and specify requirements for tubing and packer, the storage operator shall submit the following information:</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 9, second sentence; pg. 31	Okay.
Depth of setting;	40 CFR §146.86(c)(3)(i)	<u>a. Depth of setting;</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 9 a; pg. 31	Okay.
Characteristics of the carbon dioxide stream (chemical content, corrosiveness, temperature, and density) and formation fluids;	40 CFR §146.86(c)(3)(ii)	<u>b. Characteristics of the carbon dioxide stream (chemical content, corrosiveness, temperature, and density) and formation fluids;</u>	43-05-01-11. <u>INJECTION WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS.</u> Subsection 9 b; pg. 31	Okay.
Maximum proposed injection pressure;	40 CFR	<u>c. Maximum proposed injection pressure;</u>	43-05-01-11. <u>INJECTION</u>	Okay.

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	§146.86(c)(3)(iii)		WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS. Subsection 9 c; pg. 31	
Maximum proposed annular pressure;	40 CFR §146.86(c)(3)(iv)	<u>d. Maximum proposed annular pressure;</u>	43-05-01-11. <u>INJECTION</u> WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS. Subsection 9 d; pg. 31	Okay.
Proposed injection rate (intermittent or continuous) and volume and/or mass of the carbon dioxide stream;	40 CFR §146.86(c)(3)(v)	<u>e. Proposed injection rate (intermittent or continuous) and volume and mass of the carbon dioxide stream;</u>	43-05-01-11. <u>INJECTION</u> WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS. Subsection 9 e; pg. 31	Okay.
Size of tubing and casing; and	40 CFR §146.86(c)(3)(vi)	<u>f. Size of tubing and casing; and</u>	43-05-01-11. <u>INJECTION</u> WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS. Subsection 9 f; pg. 31	Okay.
Tubing tensile, burst, and collapse strengths.	40 CFR §146.86(c)(3)(vii)	<u>g. Tubing tensile, burst, and collapse strengths.</u>	43-05-01-11. <u>INJECTION</u> WELL OPERATIONAL CONSTRUCTION AND COMPLETION STANDARDS. Subsection 9 g; pg. 31	Okay.

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40 CFR §146.87 Logging, sampling, and testing prior to injection well operation.				
During the drilling and construction of a Class VI injection well, the owner or operator must run appropriate logs, surveys and tests to determine or verify the depth, thickness, porosity, permeability, and lithology of, and the salinity of any formation fluids in all relevant geologic formations to ensure conformance with the injection well construction requirements under §146.86 and to establish accurate baseline data against which future measurements may be compared. The owner or operator must submit to the Director a descriptive report prepared by a knowledgeable log analyst that includes an interpretation of the results of such logs and tests. At a minimum, such logs and tests must include:	40 CFR §146.87(a)	<u>1. During the drilling and construction of an injection well, the storage operator shall run appropriate logs, surveys and tests to determine or verify the depth, thickness, porosity, permeability, lithology, and salinity of any formation fluids in all relevant geologic formations to ensure conformance with the injection well construction requirements under section 43-05-01-11.3, and to establish accurate baseline data against which future measurements may be compared. The storage operator shall submit to the commission a descriptive report prepared by a log analyst that includes an interpretation of the results of such logs and tests. At a minimum, such logs and tests must include:</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 1; pg.33	Okay.
Deviation checks during drilling on all holes constructed by drilling a pilot hole which is enlarged by reaming or another method. Such checks must be at sufficiently frequent intervals to determine the location of the borehole and to ensure that vertical avenues for fluid movement in the form of diverging holes are not created during drilling; and	40 CFR §146.87(a)(1)	<u>a. Deviation checks during drilling on all holes constructed by drilling a pilot hole which is enlarged by reaming or another method. Such checks must be at sufficiently frequent intervals to determine the location of the borehole and to ensure that vertical avenues for fluid movement in the form of diverging holes are not created during drilling;</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 1 a; pg.33	Okay.
Before and upon installation of the surface casing:	40 CFR §146.87(a)(2)	<u>b. Before and upon installing the surface casing:</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 1 b; pg.33	Okay.
Resistivity, spontaneous potential, and caliper logs before the casing is installed; and	40 CFR §146.87(a)(2)(i)	<u>(1) Resistivity, spontaneous potential, and caliper logs before the casing is installed; and</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 1 b (1); pg.34	Okay.

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A cement bond and variable density log to evaluate cement quality radially, and a temperature log after the casing is set and cemented.	40 CFR §146.87(a)(2)(ii)	<u>(2) A cement bond and variable density log to evaluate cement quality radially, and a temperature log after the casing is set and cemented.</u>	43-05-01-11.2 Logging, sampling, and testing prior to injection well operation. Subsection 1 b (2); pg.34	Okay.
Before and upon installation of the long string casing:	40 CFR §146.87(a)(3)	<u>c. Before and upon installation of the long string casing:</u>	43-05-01-11.2 Logging, sampling, and testing prior to injection well operation. Subsection 1 c; pg.34	Okay.
Resistivity, spontaneous potential, porosity, caliper, gamma ray, fracture finder logs, and any other logs the Director requires for the given geology before the casing is installed; and	40 CFR §146.87(a)(3)(i)	<u>(1) Resistivity, spontaneous potential, porosity, caliper, gamma ray, fracture finder logs, and any other logs the commission requires for the given geology before the casing is installed; and</u>	43-05-01-11.2 Logging, sampling, and testing prior to injection well operation. Subsection 1 c (1); pg.34	Okay.
A cement bond and variable density log, and a temperature log after the casing is set and cemented.	40 CFR §146.87(a)(3)(ii)	<u>(2) A cement bond and variable density log, and a temperature log after the casing is set and cemented.</u>	43-05-01-11.2 Logging, sampling, and testing prior to injection well operation. Subsection 1 c (2); pg.34	Okay.
A series of tests designed to demonstrate the internal and external mechanical integrity of injection wells, which may include:	40 CFR §146.87(a)(4)	<u>d. A series of tests designed to demonstrate the internal and external mechanical integrity of injection wells, which may include:</u>	43-05-01-11.2 Logging, sampling, and testing prior to injection well operation. Subsection 1 d; pg.34	Okay.
A pressure test with liquid or gas;	40 CFR §146.87(a)(4)(i)	<u>(1) A pressure test with liquid or gas;</u>	43-05-01-11.2 Logging, sampling, and testing prior to injection well operation. Subsection 1 d (1); pg.34	Okay.
A tracer survey such as oxygen-activation logging;	40 CFR §146.87(a)(4)(ii)	<u>(2) A tracer survey;</u>	43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.	Okay.

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			Subsection 1 d (2); pg.34	
A temperature or noise log;	40 CFR §146.87(a)(4)(iii)	<u>(3) A temperature or noise log;</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 1 d (3); pg.34	Okay.
A casing inspection log; and	40 CFR §146.87(a)(4)(iv)	<u>(4) A casing inspection log; and</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 1 d (4); pg.34	Okay.
Any alternative methods that provide equivalent or better information and that are required by and/or approved of by the Director.	40 CFR §146.87(a)(5)	<u>e. Any alternative methods that provide equivalent or better information and that the commission requires or approves.</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 1 e; pg.34	Okay.
The owner or operator must take whole cores or sidewall cores of the injection zone and confining system and formation fluid samples from the injection zone(s), and must submit to the Director a detailed report prepared by a log analyst that includes: well log analyses (including well logs), core analyses, and formation fluid sample information. The Director may accept information on cores from nearby wells if the owner or operator can demonstrate that core retrieval is not possible and that such cores are representative of conditions at the well. The Director may require the owner or operator to core other formations in the borehole.	40 CFR §146.87(b)	<u>2. The storage operator shall take whole cores or sidewall cores of the injection zone and confining zone and formation fluid samples from the injection zone, and shall submit to the commission a detailed report prepared by a log analyst that includes: well log analyses (including well logs), core analyses, and formation fluid sample information. The commission may accept information on cores from nearby wells if the storage operator can demonstrate that core retrieval is not possible and that such cores are representative of conditions at the well. The commission may require the storage operator to core other formations in the borehole.</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 2; pg.34	Okay. Confining zone(s).
The owner or operator must record the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the injection zone(s).	40 CFR §146.87(c)	<u>3. The storage operator shall record the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the injection zone.</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u>	Okay.

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			Subsection 3; pg.34	
At a minimum, the owner or operator must determine or calculate the following information concerning the injection and confining zone(s):	40 CFR §146.87(d)	<u>4. At a minimum, the storage operator shall determine or calculate the following information concerning the injection and confining zone:</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 4; pg.34	Okay.
Fracture pressure;	40 CFR §146.87(d)(1)	<u>a. Fracture pressure;</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 4 a; pg.34	Okay.
Other physical and chemical characteristics of the injection and confining zone(s); and	40 CFR §146.87(d)(2)	<u>b. Other physical and chemical characteristics of the injection and confining zone; and</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 4 b; pg.35	Okay.
Physical and chemical characteristics of the formation fluids in the injection zone(s).	40 CFR §146.87(d)(3)	<u>c. Physical and chemical characteristics of the formation fluids in the injection zone.</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 4 c; pg.35	Okay.
Upon completion, but prior to operation, the owner or operator must conduct the following tests to verify hydrogeologic characteristics of the injection zone(s):	40 CFR §146.87(e)	<u>5. Upon completion, but prior to operation, the storage operator shall conduct the following tests to verify hydrogeologic characteristics of the injection zone:</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 5; pg.35	Okay.
A pressure fall-off test; and,	40 CFR §146.87(e)(1)	<u>a. A pressure fall-off test; and,</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 5 a; pg.35	Okay.
A pump test; or	40 CFR §146.87(e)(2)	<u>b. A pump test; or</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u>	Okay.

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			Subsection 5 b; pg.35	
Injectivity tests.	40 CFR §146.87(e)(3)	<u>c. Injectivity test.</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 5 c; pg.35	Okay.
The owner or operator must provide the Director with the opportunity to witness all logging and testing by this subpart. The owner or operator must submit a schedule of such activities to the Director 30 days prior to conducting the first test and submit any changes to the schedule 30 days prior to the next scheduled test.	40 CFR §146.87(f)	<u>6. The storage operator shall provide the commission with the opportunity to witness all logging and testing carried out under this section. The storage operator shall submit a schedule of such activities to the commission 30 days prior to conducting the first test and submit any changes to the schedule 30 days prior to the next scheduled test.</u>	<u>43-05-01-11.2 Logging, sampling, and testing prior to injection well operation.</u> Subsection 6; pg.35	Okay.
40 CFR §146.88 Injection well operating requirements.				
Except during stimulation, the owner or operator must ensure that injection pressure does not exceed 90 percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case may injection pressure initiate fractures in the confining zone(s) or cause the movement of injection or formation fluids that endangers a USDW. Pursuant to requirements at §146.82(a)(9), all stimulation programs must be approved by the Director as part of the permit application and incorporated into the permit.	40 CFR §146.88(a)	<u>1. Except during stimulation, the storage operator shall ensure that injection pressure does not exceed 90 percent of the fracture pressure of the injection zone so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone. Injection pressure must never initiate fractures in the confining zone or cause the movement of injection or formation fluids that endangers an underground source of drinking water. All stimulation programs are subject to the commission's approval as part of the storage facility permit application and incorporated into the permit.</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 1; pg. 35	Okay. Note that 43-05-01-05 b.(5) , which requires proposed injection pressures as part of the permit application, does not include the 90 percent standard, although it does mention that injection pressure should not initiate new fractures.
Injection between the outermost casing protecting USDWs and the well bore is prohibited.	40 CFR §146.88(b)	<u>2. Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 2; pg. 35	Okay.

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The owner or operator must fill the annulus between the tubing and the long string casing with a non-corrosive fluid approved by the Director. The owner or operator must maintain on the annulus a pressure that exceeds the operating injection pressure, unless the Director determines that such requirement might harm the integrity of the well or endanger USDWs.	40 CFR §146.88(c)	<u>3. The storage operator shall fill the annulus between the tubing and the long string casing with a non-corrosive fluid approved by the commission. The storage operator shall maintain on the annulus a pressure that exceeds the operating injection pressure, unless the commission determines that such requirement might harm the integrity of the well or endanger underground sources of drinking water.</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 3; pg. 35	Okay.
Other than during periods of well workover (maintenance) approved by the Director in which the sealed tubing-casing annulus is disassembled for maintenance or corrective procedures, the owner or operator must maintain mechanical integrity of the injection well at all times.	40 CFR §146.88(d)	<u>4. Other than during periods approved by the commission in which the sealed tubing-casing annulus is disassembled for maintenance or corrective procedures, the storage operator shall maintain mechanical integrity of the injection well at all times.</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 4; pg. 35	Okay.
The owner or operator must install and use:	40 CFR §146.88(e)	<u>5. The storage operator shall install and use:</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 5; pg. 35	Okay.
Continuous recording devices to monitor: the injection pressure; the rate, volume and/or mass, and temperature of the carbon dioxide stream; and the pressure on the annulus between the tubing and the long string casing and annulus fluid volume; and	40 CFR §146.88(e)(1)	<u>a. Continuous recording devices to monitor the injection pressure; the rate, volume or mass, and temperature of the carbon dioxide stream; and the pressure on the annulus between the tubing and the long string casing and annulus fluid volume; and</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 5 a; pg. 36	“volume and/or mass”
Alarms and automatic surface shut-off systems or, at the discretion of the Director, down-hole shut-off systems (e.g., automatic shut-off, check valves) for onshore wells or, other mechanical devices that provide equivalent protection; and	40 CFR §146.88(e)(2)	<u>b. Alarms and automatic surface shut-off systems or, at the discretion of the commission, down-hole shut-off systems (e.g., automatic shut-off, check valves) or, other mechanical devices that provide equivalent protection</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 5 b first part; pg. 36	Add “and” at end of paragraph. (See highlighted text in red.)
Alarms and automatic down-hole shut-off systems for wells located offshore but within State territorial waters, designed to alert the operator and shut-in the well when operating parameters such as annulus	40 CFR §146.88(e)(3)	<u>that are designed to alert the operator and shut-in the well when operating parameters diverge beyond permitted ranges or gradients specified in the permit.</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 5 b last part; pg. 36	Okay.

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pressure, injection rate, or other parameters diverge beyond permitted ranges and/or gradients specified in the permit.				
If a shutdown (i.e., down-hole or at the surface) is triggered or a loss of mechanical integrity is discovered, the owner or operator must immediately investigate and identify as expeditiously as possible the cause of the shutoff. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under paragraph (e) of this section otherwise indicates that the well may be lacking mechanical integrity, the owner or operator must:	40 CFR §146.88(f)	<u>6. If a shutdown (down-hole or at the surface) is triggered or a loss of mechanical integrity is discovered, the storage operator shall immediately investigate and identify the cause as expeditiously as possible. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under subsection 5 of this section indicates that the well may lack mechanical integrity, the storage operator shall:</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 6; pg. 36	Insert “of the shutoff” after “cause.”
Immediately cease injection;	40 CFR §146.88(f)(1)	<u>a. Immediately cease injection;</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 6 a; pg. 36	Okay.
Take all steps reasonably necessary to determine whether there may have been a release of the injected carbon dioxide stream or formation fluids into any unauthorized zone;	40 CFR §146.88(f)(2)	<u>b. Take all steps reasonably necessary to determine whether there may have been a release of the injected carbon dioxide stream or formation fluids into any unauthorized zone;</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 6 b; pg. 36	Okay.
Notify the Director within 24 hours;	40 CFR §146.88(f)(3)	<u>c. Notify the commission within 24 hours;</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 6 c; pg. 36	Okay.
Restore and demonstrate mechanical integrity to the satisfaction of the Director prior to resuming injection; and	40 CFR §146.88(f)(4)	<u>d. Restore and demonstrate mechanical integrity to the satisfaction of the commission prior to resuming injection; and</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 6 d; pg. 36	Okay.
Notify the Director when injection can be expected to resume.	40 CFR §146.88(f)(5)	<u>e. Notify the commission when injection can be expected to resume.</u>	<u>43-05-01-11.3 Injection well operating requirements.</u> Subsection 6 e; pg. 36	Okay.

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40 CFR §146.89 Mechanical integrity.				
A Class VI well has mechanical integrity if:	40 CFR §146.89(a)	<u>1. An injection well has mechanical integrity if:</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 1; pg. 32	Okay.
There is no significant leak in the casing, tubing, or packer; and	40 CFR §146.89(a)(1)	<u>a. There is no significant leak in the casing, tubing, or packer; and</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 1 a; pg. 32	Okay.
There is no significant fluid movement into a USDW through channels adjacent to the injection well bore.	40 CFR §146.89(a)(2)	<u>b. There is no significant fluid movement into an underground source of drinking water through channels adjacent to the injection well bore.</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 1 b; pg. 32	Okay.
To evaluate the absence of significant leaks under paragraph (a)(1) of this section, owners or operators must, following an initial annulus pressure test, continuously monitor injection pressure, rate, injected volumes; pressure on the annulus between tubing and long-string casing; and annulus fluid volume as specified in §146.88 (e);	40 CFR §146.89(b)	<u>2. To evaluate the absence of significant leaks the storage operator shall, following an initial annulus pressure test, continuously monitor injection pressure, rate, injected volumes, pressure on the annulus between tubing and long-string casing, and annulus fluid volume</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 2; pg. 32-33	Okay.
At least once per year, the owner or operator must use one of the following methods to determine the absence of significant fluid movement under paragraph (a)(2) of this section:	40 CFR §146.89(c)	<u>3. At least annually, the storage operator shall use one of the following methods to determine the absence of significant fluid movement</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 3; pg. 33	Okay.
An approved tracer survey such as an oxygen-activation log; or	40 CFR §146.89(c)(1)	<u>a. An approved tracer survey; or</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 3 a; pg. 33	Okay.

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A temperature or noise log.	40 CFR §146.89(c)(2)	<u>b. A temperature or noise log.</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 3 b; pg. 33	Okay.
If required by the Director, at a frequency specified in the testing and monitoring plan required at §146.90, the owner or operator must run a casing inspection log to determine the presence or absence of corrosion in the long-string casing.	40 CFR §146.89(d)	<u>4. If required by the commission, at a frequency specified in the testing and monitoring plan, the storage operator shall run a casing inspection log to determine the presence or absence of corrosion in the long-string casing.</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 4; pg. 33	Okay.
The Director may require any other test to evaluate mechanical integrity under paragraphs (a)(1) or (a)(2) of this section. Also, the Director may allow the use of a test to demonstrate mechanical integrity other than those listed above with the written approval of the Administrator. To obtain approval for a new mechanical integrity test, the Director must submit a written request to the Administrator setting forth the proposed test and all technical data supporting its use. The Administrator may approve the request if he or she determines that it will reliably demonstrate the mechanical integrity of wells for which its use is proposed. Any alternate method approved by the Administrator will be published in the <i>Federal Register</i> and may be used in all States in accordance with applicable State law unless its use is restricted at the time of approval by the Administrator.	40 CFR §146.89(e)	<u>5. The commission may require alternative and additional methods to evaluate mechanical integrity.</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 5; pg. 33	The commission must use a MIT test that has been approved by the EPA Administrator or submit a written request to the Administrator to use a MIT test that has not been approved.
In conducting and evaluating the tests enumerated in this section or others to be allowed by the Director, the owner or operator and the Director must apply methods and standards generally accepted in the industry. When the owner or operator reports the	40 CFR §146.89(f)	<u>6. To evaluate mechanical integrity, the storage operator shall apply methods and standards generally accepted in the industry. When the storage operator reports the results of mechanical integrity tests to the commission, the storage operator shall include a description of the test and the</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 6; pg. 33	Add “conduct and evaluate mechanical integrity.” (See text highlighted in red.) Add language that addresses the federal requirement that the director (commission) must review monitoring and other test data

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results of mechanical integrity tests to the Director, he/she shall include a description of the test(s) and the method(s) used. In making his/her evaluation, the Director must review monitoring and other test data submitted since the previous evaluation.		<u>method used.</u>		submitted since the previous evaluation.
The Director may require additional or alternative tests if the results presented by the owner or operator under paragraphs (a) through (d) of this section are not satisfactory to the Director to demonstrate that there is no significant leak in the casing, tubing, or packer, or to demonstrate that there is no significant movement of fluid into a USDW resulting from the injection activity as stated in paragraphs (a)(1) and (2) of this section.	40 CFR §146.89(g)	<u>7. The commission may require additional or alternative tests if the results presented by the storage operator are not satisfactory to the commission to demonstrate mechanical integrity</u>	<u>43-05-01-11.1 Mechanical integrity- INJECTION WELLS.</u> Subsection 7; pg. 33	Add language that addresses the federal requirement that the operator must demonstrate that there is no significant leak in the casing, tubing, or packer, or to demonstrate that there is no significant movement of fluid into a USDW resulting from the injection activity.
40 CFR §146.90 Testing and monitoring requirements.				
The owner or operator of a Class VI well must prepare, maintain, and comply with a testing and monitoring plan to verify that the geologic sequestration project is operating as permitted and is not endangering USDWs. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The testing and monitoring plan must be submitted with the permit application, for Director approval, and must include a description of how the owner or operator will meet the requirements of this section, including accessing sites for all necessary monitoring and testing during the life of the project. Testing and monitoring associated with geologic sequestration projects must, at a minimum, include:	40 CFR §146.90	<u>The storage operator shall prepare, maintain, and comply with a testing and monitoring plan to verify that the geologic sequestration project is operating as permitted and is not endangering underground sources of drinking water. The plan must be submitted with the storage facility permit application, for commission approval, and must include a description of how the storage operator will meet the requirements of this section, including accessing sites for all necessary monitoring and testing during the life of the project. The plan must, at a minimum, include:</u>	43-05-01-11.4 Testing and monitoring requirements. First paragraph; pg. 36	Add language that addresses the federal requirement that the project plans are directly enforceable regardless of whether the requirement is a condition of the permit.

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Analysis of the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics;	40 CFR §146.90(a)	<u>1. Analysis of the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics;</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 1; pg. 36	Okay.
Installation and use, except during well workovers as defined in §146.88(d), of continuous recording devices to monitor injection pressure, rate, and volume; the pressure on the annulus between the tubing and the long string casing; and the annulus fluid volume added;	40 CFR §146.90(b)	<u>2. Installation and use, except during well workovers, of continuous recording devices to monitor injection pressure, rate, and volume; the pressure on the annulus between the tubing and the long string casing; and the annulus fluid volume added;</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 2; pg. 36	Okay.
Corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion, which must be performed on a quarterly basis to ensure that the well components meet the minimum standards for material strength and performance set forth in §146.86(b), by:	40 CFR §146.90(c)	<u>3. Corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion, which must be performed on a quarterly basis to ensure that the well components meet the minimum standards for material strength and performance by:</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 3; pg. 37	Okay.
Analyzing coupons of the well construction materials placed in contact with the carbon dioxide stream; or	40 CFR §146.90(c)(1)	<u>a. Analyzing coupons of the well construction materials placed in contact with the carbon dioxide stream; or</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 3 a; pg. 37	Okay.
Routing the carbon dioxide stream through a loop constructed with the material used in the well and inspecting the materials in the loop; or	40 CFR §146.90(c)(2)	<u>b. Routing the carbon dioxide stream through a loop constructed with the material used in the well and inspecting the materials in the loop; or</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 3 b; pg. 37	Okay.
Using an alternative method approved by the Director;	40 CFR §146.90(c)(3)	<u>c. Using an alternative method approved by the commission;</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 3 c; pg. 37	Okay.
Periodic monitoring of the ground water quality and geochemical changes above the confining zone(s) that may be a result of carbon dioxide movement through the confining zone(s) or additional identified zones including:	40 CFR §146.90(d)	<u>4. Periodic monitoring of the ground water quality and geochemical changes above the confining zone that may be a result of carbon dioxide movement through the confining zone or additional identified zones including:</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 4; pg. 37	Okay.

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The location and number of monitoring wells based on specific information about the geologic sequestration project, including injection rate and volume, geology, the presence of artificial penetrations, and other factors; and	40 CFR §146.90(d)(1)	<u>a. The location and number of monitoring wells based on specific information about the geologic sequestration project, including injection rate and volume, geology, the presence of artificial penetrations, and other factors; and</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 4 a; pg. 37	Okay.
The monitoring frequency and spatial distribution of monitoring wells based on baseline geochemical data that has been collected under §146.82(a)(6) and on any modeling results in the area of review evaluation required by §146.84(c).	40 CFR §146.90(d)(2)	<u>b. The monitoring frequency and spatial distribution of monitoring wells based on baseline geochemical data and on any modeling results in the area of review evaluation.</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 4 b; pg. 37	Okay. Add reference to §146.82(a)(6) and §146.84(c).
A demonstration of external mechanical integrity pursuant to §146.89(c) at least once per year until the injection well is plugged; and, if required by the Director, a casing inspection log pursuant to requirements at §146.89(d) at a frequency established in the testing and monitoring plan;	40 CFR §146.90(e)	<u>5. A demonstration of external mechanical integrity at least once per year until the injection well is plugged; and, if required by the commission, a casing inspection log at a frequency established in the testing and monitoring plan;</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 5; pg. 37	Okay. Add reference to §146.89(c) and §146.89(d).
A pressure fall-off test at least once every five years unless more frequent testing is required by the Director based on site-specific information;	40 CFR §146.90(f)	<u>6. A pressure fall-off test at least once every five years unless more frequent testing is required by the commission based on site-specific information;</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 6; pg. 37	Okay.
Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using:	40 CFR §146.90(g)	<u>7. Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using:</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 7; pg. 37	Okay.
Direct methods in the injection zone(s); and,	40 CFR §146.90(g)(1)	<u>a. Direct methods in the injection zone; or,</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 7 a; pg. 37	Replace “or” with “and.” (See text highlighted in red.)
Indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Director determines, based on site-specific geology, that such	40 CFR §146.90(g)(2)	<u>b. Indirect methods (e.g., seismic, electrical, gravity, interferometric synthetic aperture radar or electromagnetic surveys and down-hole carbon dioxide detection tools), unless the commission determines, based on site-specific</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 7 b; pg. 37	Okay.

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methods are not appropriate;		<u>geology, that such methods are not appropriate;</u>		
The Director may require surface air monitoring and/or soil gas monitoring to detect movement of carbon dioxide that could endanger a USDW.	40 CFR §146.90(h)	<u>8. The commission may require surface air monitoring and soil gas monitoring to detect movement of carbon dioxide that could endanger an underground source of drinking water. Regarding these requirements:</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 8; pg. 37	Okay.
Design of Class VI surface air and/or soil gas monitoring must be based on potential risks to USDWs within the area of review;	40 CFR §146.90(h)(1)	<u>a. Design of surface air and soil gas monitoring must be based on potential risks to underground sources of drinking water within the area of review;</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 8 a; pg. 38	Okay.
The monitoring frequency and spatial distribution of surface air monitoring and/or soil gas monitoring must be decided using baseline data, and the monitoring plan must describe how the proposed monitoring will yield useful information on the area of review delineation and/or compliance with standards under §144.12 of this chapter;	40 CFR §146.90(h)(2)	<u>b. The monitoring frequency and spatial distribution of surface air monitoring and soil gas monitoring must be based on using baseline data, and the monitoring plan must describe how the proposed monitoring will yield useful information on the area of review; and</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 8 b; pg. 38	43-05-01-11.4, subsection 8 does not include a statement equivalent to the final part of 40 CFR 146.90(h)(2) (“and to determine compliance with standards under §144.12 of this chapter,” i.e. the no-fluid-movement standard). Add language that addresses the no-fluid movement standard.
If an owner or operator demonstrates that monitoring employed under §§98.440 to 98.449 of this chapter (Clean Air Act, 42 U.S.C. 7401 et seq.) accomplishes the goals of (h)(1) and (2) of this section, and meets the requirements pursuant to §146.91(c)(5), a Director that requires surface air/soil gas monitoring must approve the use of monitoring employed under §§98.440 to 98.449 of this chapter. Compliance with §§98.440 to 98.449 of this chapter pursuant to this provision is considered a condition of the Class VI permit;	40 CFR §146.90(h)(3)	<u>c. Surface air monitoring and soil gas monitoring methods are subject to the commission’s approval.</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 8 c; pg. 38	May need to add reference to the Clean Air Act.
Any additional monitoring, as required by the Director, necessary to support, upgrade, and improve computational modeling of the area of review	40 CFR §146.90(i)	<u>9. Any additional monitoring, as required by the commission, necessary to support, upgrade, and improve computational modeling of the area of review evaluation;</u>	43-05-01-11.4 Testing and monitoring requirements. Subsection 9; pg. 38	43-05-01-11.4, subsection 9 does not include a statement equivalent to the final part of 40 CFR 146.90(i) (“and to determine

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evaluation required under §146.84(c) and to determine compliance with standards under §144.12 of this chapter;		Formatting retained from original; text moved from far right column unless otherwise noted.		compliance with standards under §144.12 of this chapter,” i.e. the no-fluid-movement standard). Add language that addresses compliance with standards under §144.12.
The owner or operator shall periodically review the testing and monitoring plan to incorporate monitoring data collected under this subpart, operational data collected under §146.88, and the most recent area of review reevaluation performed under §146.84(e). In no case shall the owner or operator review the testing and monitoring plan less often than once every five years. Based on this review, the owner or operator shall submit an amended testing and monitoring plan or demonstrate to the Director that no amendment to the testing and monitoring plan is needed. Any amendments to the testing and monitoring plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at §§144.39 or 144.41 of this chapter, as appropriate. Amended plans or demonstrations shall be submitted to the Director as follows:	40 CFR §146.90(j)	<u>10. Periodic reviews of the testing and monitoring plan by the storage operator to incorporate monitoring data collected, operational data collected, and the most recent area of review reevaluation performed. The storage operator shall review the testing and monitoring plan at least once every five years. Based on this review, the storage operator shall submit an amended testing and monitoring plan or demonstrate to the commission that no amendment to the testing and monitoring plan is needed. Any amendments to the testing and monitoring plan are subject to the commission’s approval, must be incorporated into the permit, and are subject to the permit modification requirements. Amended plans or demonstrations must be submitted to the commission as follows:</u>	<u>43-05-01-11.4 Testing and monitoring requirements.</u> Subsection 10; pg. 38	Okay. Add references to §146.88, §146.84(e), §144.39, and §144.41.
Within one year of an area of review reevaluation;	40 CFR §146.90(j)(1)	<u>a. Within one year of an area of review reevaluation;</u>	<u>43-05-01-11.4 Testing and monitoring requirements.</u> Subsection 10 a; pg. 38	Okay.
Following any significant changes to the facility, such as addition of monitoring wells or newly permitted injection wells within the area of review, on a schedule determined by the Director; or	40 CFR §146.90(j)(2)	<u>b. Following any significant changes to the facility, such as addition of monitoring wells or newly permitted injection wells within the area of review, on a schedule determined by the commission; or</u>	<u>43-05-01-11.4 Testing and monitoring requirements.</u> Subsection 10 b; pg. 38	Okay.
When required by the Director.	40 CFR	<u>c. When required by the commission</u>	<u>43-05-01-11.4 Testing and</u>	Okay.

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	§146.90(j)(3)	Formatting retained from original; text moved from far right column unless otherwise noted.	<u>monitoring requirements.</u> Subsection 10 c; pg. 38	
A quality assurance and surveillance plan for all testing and monitoring requirements.	40 CFR §146.90(k)	<u>11. A quality assurance and surveillance plan for all testing and monitoring requirements.</u>	43-05-01-11.4 Testing and <u>monitoring requirements.</u> Subsection 11; pg. 38	Okay.
40 CFR §146.91 Reporting requirements.				
The owner or operator must, at a minimum, provide, as specified in paragraph (e) of this section, the following reports to the Director, for each permitted Class VI well:	40 CFR §146.91	<u>1. The storage operator shall file with the commission all reports, submittals, notifications, and any other information that the commission requires.</u> <u>3. The storage operator shall submit all required reports, submittals, and notifications under chapter 43-05-01 to the United States Environmental Protection Agency in an electronic format approved by that agency.</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 1; 47 43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 3; 47	Okay.
Semi-annual reports containing:	40 CFR §146.91(a)	4.2. The quarterly report is due thirty days after the end of the quarter. <u>The report must:</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 4; pg. 47	Okay.
Any changes to the physical, chemical, and other relevant characteristics of the carbon dioxide stream from the proposed operating data;	40 CFR §146.91(a)(1)	<u>a. Describe any changes to the physical, chemical, and other relevant characteristics of the carbon dioxide stream from the proposed operating data;</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 4 a; pg. 48	Okay.
Monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and	40 CFR §146.91(a)(2)	<u>b. State the monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING	Okay.

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annular pressure;		<u>annular pressure;</u>	REQUIREMENTS. Subsection 4 b; pg. 48	
A description of any event that exceeds operating parameters for annulus pressure or injection pressure specified in the permit;	40 CFR §146.91(a)(3)	<u>c. Describe any event that exceeds operating parameters for annulus pressure or injection pressure specified in the permit;</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 4 c; pg. 48	Okay.
A description of any event which triggers a shut-off device required pursuant to §146.88(e) and the response taken;	40 CFR §146.91(a)(4)	<u>d. Describe any event which triggers a shut-off device required pursuant to subsection 5 of section 43-05-01-11.3 and the response taken;</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 4 d; pg. 48	Okay.
The monthly volume and/or mass of the carbon dioxide stream injected over the reporting period and the volume injected cumulatively over the life of the project;	40 CFR §146.91(a)(5)	<u>e. State the monthly volume and mass of the carbon dioxide stream injected over the reporting period and the volume injected cumulatively over the life of the project to date;</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 4 e; pg. 48	Okay.
Monthly annulus fluid volume added; and	40 CFR §146.91(a)(6)	<u>f. State the monthly annulus fluid volume added; and</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 4 f; pg. 48	Okay.
The results of monitoring prescribed under §146.90.	40 CFR §146.91(a)(7)	<u>g. State the results of monitoring prescribed under section 43-05-01-11.4.</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 4 g; pg. 48	Okay.

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Report, within 30 days, the results of:	40 CFR §146.91(b)	<u>6. The storage operator shall report, within 30 days, the results of:</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 6; pg. 48	Okay.
Periodic tests of mechanical integrity;	40 CFR §146.91(b)(1)	<u>a. Periodic tests of mechanical integrity;</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 6 a; pg. 48	Okay.
Any well workover; and,	40 CFR §146.91(b)(2)	<u>b. Any well workover; and,</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 6 b; pg. 48	Okay.
Any other test of the injection well conducted by the permittee if required by the Director.	40 CFR §146.91(b)(3)	<u>c. Any other test of the injection well conducted by the storage operator if required by the commission.</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 6 c; pg. 48	Okay.
Report, within 24 hours:	40 CFR §146.91(c)	<u>7. The storage operator shall report, within 24 hours:</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 7; pg. 48	Okay.
Any evidence that the injected carbon dioxide stream or associated pressure front may cause an	40 CFR §146.91(c)(1)	<u>a. Any evidence that the injected carbon dioxide stream or associated pressure front may cause an endangerment to an</u>	43-05-01-18- QUARTERLY AND ANNUAL	Okay.

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endangerment to a USDW;		<u>underground source of drinking water;</u>	REPORTING REQUIREMENTS. Subsection 7 a; pg. 48	
Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs;	40 CFR §146.91(c)(2)	<u>b. Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between underground sources of drinking water;</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 7 b; pg. 49	Okay.
Any triggering of a shut-off system (i.e., down-hole or at the surface);	40 CFR §146.91(c)(3)	<u>c. Any triggering of a shut-off system (i.e., down-hole or at the surface);</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 7 c; pg. 49	Okay.
Any failure to maintain mechanical integrity; or.	40 CFR §146.91(c)(4)	<u>d. Any failure to maintain mechanical integrity; or,</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 7 d; pg. 49	Okay.
Pursuant to compliance with the requirement at §146.90(h) for surface air/soil gas monitoring or other monitoring technologies, if required by the Director, any release of carbon dioxide to the atmosphere or biosphere.	40 CFR §146.91(c)(5)	<u>e. Any release of carbon dioxide to the atmosphere or biosphere in compliance with the requirement under subsection 8 of section 43-05-01-11.4 for surface air and soil gas monitoring, or other monitoring technologies required by the commission.</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 7 e; pg. 49	Okay.
Owners or operators must notify the Director in writing 30 days in advance of:	40 CFR §146.91(d)	<u>8. The storage operator shall notify the commission in writing 30 days in advance of:</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 8; pg. 49	Okay.
Any planned well workover;	40 CFR	<u>a. Any planned well workover;</u>	43-05-01-18- QUARTERLY	Okay.

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	§146.91(d)(1)		AND ANNUAL REPORTING REQUIREMENTS. Subsection 8 a; pg. 49	
Any planned stimulation activities, other than stimulation for formation testing conducted under §146.82; and	40 CFR §146.91(d)(2)	<u>b. Any planned stimulation activities, other than stimulation for formation testing conducted; and</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 8 b; pg. 49	Add reference to §146.82.
Any other planned test of the injection well conducted by the permittee.	40 CFR §146.91(d)(3)	<u>c. Any other planned test of the injection well.</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 8 c; pg. 49	Add language “conducted by the storage operator.”
Regardless of whether a State has primary enforcement responsibility, owners or operators must submit all required reports, submittals, and notifications under subpart H of this part to EPA in an electronic format approved by EPA.	40 CFR §146.91(e)	<u>3. The storage operator shall submit all required reports, submittals, and notifications under chapter 43-05-01 to the United States Environmental Protection Agency in an electronic format approved by that agency.</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 3; pg. 47	Okay.
Records shall be retained by the owner or operator as follows:	40 CFR §146.91(f)	<u>9. The storage operator shall retain records until project completion. Upon project completion the storage operator shall deliver any records required in this section to the commission. The following records shall be retained:</u>	43-05-01-18- QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 9; pg. 49	43-05-01-18, subsection 9 requires record retention until project completion. This is shorter than the federal rule’s requirement (10 years after site closure) in most cases. After project completion, the operator must deliver the records to the commission (this is an additional requirement compared to the federal rule). Question about record retention for 10 years after PISC.
All data collected under §146.82 for Class VI permit	40 CFR	<u>a. All data collected for the applications of the storage</u>	43-05-01-18- QUARTERLY	43-05-01-18, subsection 9 requires record

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applications shall be retained throughout the life of the geologic sequestration project and for 10 years following site closure.	§146.91(f)(1)	<u>facility permit, injection well permit, and operation of injection well permit;</u>	AND ANNUAL REPORTING REQUIREMENTS. Subsection 9 a; pg. 49	retention until project completion. This is shorter than the federal rule's requirement for permit application information (10 years after site closure). Question about record retention for 10 years after PISC.
Data on the nature and composition of all injected fluids collected pursuant to §146.90(a) shall be retained until 10 years after site closure. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period.	40 CFR §146.91(f)(2)	<u>b. Data on the nature and composition of all injected fluids collected pursuant to subsection 1 of section 43-05-01-11.4;</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 9 b; pg. 49	43-05-01-18, subsection 9 requires record retention until project completion. This is shorter than the federal rule's requirement for injected fluid composition data (10 years after site closure). Question about record retention for 10 years after PISC.
Monitoring data collected pursuant to §146.90(b) through (i) shall be retained for 10 years after it is collected.	40 CFR §146.91(f)(3)	<u>c. Monitoring data collected pursuant to subsections 2 through 9 of section 43-05-01-11.4; and</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 9 c; pg. 49	43-05-01-18, subsection 9 requires record retention until project completion. In some cases, this could be shorter than the federal rule's requirement for monitoring data (10 years after collection). Question about record retention for 10 years after PISC.
Well plugging reports, post-injection site care data, including, if appropriate, data and information used to develop the demonstration of the alternative post-injection site care timeframe, and the site closure report collected pursuant to requirements at §§146.93(f) and (h) shall be retained for 10 years following site closure.	40 CFR §146.91(f)(4)	<u>d. All records from the closure period including well plugging reports, post-injection site care data, and the final assessment;</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 9 d; pg. 49	43-05-01-18, subsection 9 requires record retention until project completion. This is shorter than the federal rule's requirement for plugging and PISC data (10 years after site closure). Question about record retention for 10 years after PISC.
The Director has authority to require the owner or operator to retain any records required in this subpart for longer than 10 years after site closure.	40 CFR §146.91(f)(5)	<u>9. The storage operator shall retain records until project completion. Upon project completion the storage operator shall deliver any records required in this section to the</u>	43-05-01-18. QUARTERLY AND ANNUAL REPORTING	Question about record retention for 10 years after PISC.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
		Formatting retained from original; text moved from far right column unless otherwise noted.		
		<u>commission. The following records shall be retained:</u>	REQUIREMENTS. Subsection 9; pg. 49	
40 CFR §146.92 Injection well plugging.				
Prior to the well plugging, the owner or operator must flush each Class VI injection well with a buffer fluid, determine bottomhole reservoir pressure, and perform a final external mechanical integrity test.	40 CFR §146.92(a)	<u>1. Prior to the well plugging, the storage operator shall flush each injection well with a buffer fluid, determine bottomhole reservoir pressure, and perform a final external mechanical integrity test.</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 1; pg. 38	Okay.
<i>Well Plugging Plan.</i> The owner or operator of a Class VI well must prepare, maintain, and comply with a plan that is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The well plugging plan must be submitted as part of the permit application and must include the following information:	40 CFR §146.92(b)	<u>2. The storage operator shall prepare, maintain, and comply with a plugging plan that is acceptable to the commission. The plan must be submitted as part of the storage facility permit application and must include the following:</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 2; pg. 38	Add language that addresses the federal requirement that the project plans are directly enforceable regardless of whether the requirement is a condition of the permit.
Appropriate tests or measures for determining bottomhole reservoir pressure;	40 CFR §146.92(b)(1)	<u>a. Appropriate tests or measures for determining bottomhole reservoir pressure;</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 2 a; pg. 38	Okay.
Appropriate testing methods to ensure external mechanical integrity as specified in §146.89;	40 CFR §146.92(b)(2)	<u>b. Appropriate testing methods to ensure external mechanical integrity;</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 2 b; pg. 39	Okay.
The type and number of plugs to be used;	40 CFR §146.92(b)(3)	<u>c. The type and number of plugs to be used;</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 2 c; pg. 39	Okay.
The placement of each plug, including the elevation of the top and bottom of each plug;	40 CFR §146.92(b)(4)	<u>d. The placement of each plug, including the elevation of the top and bottom of each plug;</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 2 d; pg. 39	Okay.

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The type, grade, and quantity of material to be used in plugging. The material must be compatible with the carbon dioxide stream; and	40 CFR §146.92(b)(5)	<u>e. The type, grade, and quantity of material to be used in plugging. The material must be compatible with the carbon dioxide stream; and</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 2 e; pg. 39	Okay.
The method of placement of the plugs.	40 CFR §146.92(b)(6)	<u>f. The method of placement of the plugs.</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 2 f; pg. 39	Okay.
<i>Notice of intent to plug.</i> The owner or operator must notify the Director in writing pursuant to §146.91(e), at least 60 days before plugging of a well. At this time, if any changes have been made to the original well plugging plan, the owner or operator must also provide the revised well plugging plan. The Director may allow for a shorter notice period. Any amendments to the injection well plugging plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at §§144.39 or 144.41 of this chapter, as appropriate.	40 CFR §146.92(c)	<u>3. The storage operator shall notify the commission in writing, at least 60 days before plugging a well, although the commission may allow a shorter period. At this time, if any changes have been made to the original well plugging plan, the storage operator shall also provide the revised well plugging plan. Any amendments to the plan are subject to the commission's approval and must be incorporated into the storage facility permit and are subject to the permit modification requirements.</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 3; pg. 39	Add language that addresses the federal requirement at §146.91(e) that the storage operator must submit all required reports, submittals, and notifications to EPA.
<i>Plugging report.</i> Within 60 days after plugging, the owner or operator must submit, pursuant to §146.91(e), a plugging report to the Director. The report must be certified as accurate by the owner or operator and by the person who performed the plugging operation (if other than the owner or operator.) The owner or operator shall retain the well plugging report for 10 years following site closure.	40 CFR §146.92(d)	<u>4. Within 60 days after plugging, the storage operator shall submit, a plugging report to the commission. The report must be certified as accurate by the storage operator and by the person who performed the plugging operation (if other than the storage operator). The storage operator shall retain the well plugging report until project completion. Upon project completion the storage operator shall deliver the records to the commission.</u>	<u>43-05-01-11.5. Injection well plugging.</u> Subsection 4; pg. 39	Add language that addresses the federal requirement at §146.91(e) that the storage operator must submit all required reports, submittals, and notifications to EPA. Add language that addresses record retention for 10 years after site closure.
40 CFR §146.93 Post-injection site care and site closure.				
The owner or operator of a Class VI well must prepare, maintain, and comply with a plan for post-injection site care and site closure that meets the	40 CFR §146.93(a)	<u>The storage operator shall submit the post-injection site care and facility closure plan as a part of the storage facility permit application to be approved by the commission.</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u>	Add language that addresses the federal requirement that the storage operator must prepare, maintain, and comply with a plan for

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requirements of paragraph (a)(2) of this section and is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.			First Paragraph; pg. 50	post-injection site care. Add language that addresses the federal requirement that the project plans are directly enforceable regardless of whether the requirement is a condition of the permit.
The owner or operator must submit the post-injection site care and site closure plan as a part of the permit application to be approved by the Director.	40 CFR §146.93(a)(1)	<u>The storage operator shall submit the post-injection site care and facility closure plan as a part of the storage facility permit application to be approved by the commission.</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> First Paragraph; pg. 50	Okay.
The post-injection site care and site closure plan must include the following information:	40 CFR §146.93(a)(2)	<u>1. The post-injection site care and facility closure plan must include the following information:</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 1; pg. 50	Okay.
The pressure differential between pre-injection and predicted post-injection pressures in the injection zone(s);	40 CFR §146.93(a)(2)(i)	<u>a. The pressure differential between pre-injection and predicted post-injection pressures in the injection zone;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 1 a; pg. 50	Okay.
The predicted position of the carbon dioxide plume and associated pressure front at site closure as demonstrated in the area of review evaluation required under §146.84(c)(1);	40 CFR §146.93(a)(2)(ii)	<u>b. The predicted position of the carbon dioxide plume and associated pressure front at cessation of injection as demonstrated in the area of review evaluation;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 1 b; pg. 50	Okay.
A description of post-injection monitoring location, methods, and proposed frequency;	40 CFR §146.93(a)(2)(iii)	<u>c. A description of post-injection monitoring location, methods, and frequency;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 1 c; pg. 50	“Proposed frequency” instead of “frequency.” (See text highlighted in red.)
A proposed schedule for submitting post-injection site care monitoring results to the Director pursuant	40 CFR §146.93(a)(2)(iv)	<u>d. A schedule for submitting post-injection monitoring results to the commission; and,</u>	43-05-01-19. <u>POST-INJECTION SITE CARE</u>	“post-injection site care monitoring” Add language that addresses the federal

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to §146.91(e); and,			<u>AND FACILITY CLOSURE.</u> Subsection 1 d; pg. 50	requirement in §146.919(e) that requires the storage operator to submit the proposed schedule to EPA.
The duration of the post-injection site care timeframe and, if approved by the Director, the demonstration of the alternative post-injection site care timeframe that ensures non-endangerment of USDWs.	40 CFR §146.93(a)(2)(v)	<u>e. The duration of the post-injection monitoring timeframe that ensures non-endangerment of underground sources of drinking water.</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 1 e; pg. 50	“post-injection site care monitoring” Add language that addresses the federal requirement of establishing an alternate PISC timeframe at the time of the permit application.
Upon cessation of injection, owners or operators of Class VI wells must either submit an amended post-injection site care and site closure plan or demonstrate to the Director through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the post-injection site care and site closure plan must be approved by the Director, be incorporated into the permit, and are subject to the permit modification requirements at §§144.39 or 144.41 of this chapter, as appropriate.	40 CFR §146.93(a)(3)	<u>3. Upon cessation of injection, the storage operator shall either submit an amended post-injection site care and facility closure plan or demonstrate to the commission through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the post-injection site care and facility closure plan are subject to the commission’s approval and must be incorporated into the storage facility permit.</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 3; pg. 50	Add language that addresses the federal requirement that any amendments to the PISC and site closure plan are subject to the permit modification requirements at §144.39 or §144.41. (See text highlighted in red.)
At any time during the life of the geologic sequestration project, the owner or operator may modify and resubmit the post-injection site care and site closure plan for the Director’s approval within 30 days of such change.	40 CFR §146.93(a)(4)	<u>4. At any time during the life of the geologic sequestration project, the storage operator may modify and resubmit the post-injection site care and facility closure plan for the commission’s approval within 30 days of such change.</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 4; pg. 50	Okay.
The owner or operator shall monitor the site following the cessation of injection to show the position of the carbon dioxide plume and pressure front and demonstrate that USDWs are not being endangered.	40 CFR §146.93(b)	<u>2. The storage operator shall specify in submit a the post-injection site care and facility closure monitoring plan for the closure period for approval by the commission, including a proposal specifying which wells will be plugged and which will remain unplugged to be used as subsurface observation wells. Subsurface observation and ground water monitoring wells as approved in the plan must remain in</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 2; pg. 50	Check wording; there may be some mistakes in the wording. Add language that addresses the federal requirement that the operator must carry out post-injection monitoring to show the position of the carbon dioxide plume and

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		place for continued monitoring during the closure and postclosure periods.		pressure front and demonstrate that USDWs are not endangered.
Following the cessation of injection, the owner or operator shall continue to conduct monitoring as specified in the Director-approved post-injection site care and site closure plan for at least 50 years or for the duration of the alternative timeframe approved by the Director pursuant to requirements in paragraph (c) of this section, unless he/she makes a demonstration under (b)(2) of this section. The monitoring must continue until the geologic sequestration project no longer poses an endangerment to USDWs and the demonstration under (b)(2) of this section is submitted and approved by the Director.	40 CFR §146.93(b)(1)	7.5. The commission shall develop in conjunction with the storage operator a continuing monitoring plan for the postclosure period, including a review and final approval of wells to be plugged.	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 7; pg. 51	Add language that addresses the federal requirement that the geologic sequestration project no longer poses a risk of endangerment to USDWs.
If the owner or operator can demonstrate to the satisfaction of the Director before 50 years or prior to the end of the approved alternative timeframe based on monitoring and other site-specific data, that the geologic sequestration project no longer poses an endangerment to USDWs, the Director may approve an amendment to the post-injection site care and site closure plan to reduce the frequency of monitoring or may authorize site closure before the end of the 50-year period or prior to the end of the approved alternative timeframe, where he or she has substantial evidence that the geologic sequestration project no longer poses a risk of endangerment to USDWs.	40 CFR §146.93(b)(2)	4. The certificate may not be issued until at least ten years after carbon dioxide injections end. 5. The certificate may only be issued if the storage operator: a. Is in full compliance with all laws governing the storage facility. b. Shows that it has addressed all pending claims regarding the storage facility's operation. c. Shows that the storage reservoir is reasonably expected to retain the carbon dioxide stored in it. d. Shows that the carbon dioxide in the storage reservoir has become stable. Stored carbon dioxide is stable if it is essentially stationary or, if it is migrating or may migrate, that any migration will be unlikely to cross the storage reservoir boundary. e. Shows that all wells, equipment, and facilities to be used in the postclosure period are in good condition and retain	NDCC 38-22-17. Certificate of project completion - Release - Transfer of title and custody. Subsections 4 and 5 a through f; pg. 45	Add language that addresses the federal requirement that the GS project no longer poses a risk of endangerment to USDWs. Add language that addresses the federal requirement of the provision for establishing an alternate PISC timeframe at the time of the permit application. At least ten years is not as stringent as at least 50 years, with option for an alternative time period less than 50 years.

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		mechanical integrity. f. Shows that it has plugged wells, removed equipment and facilities, and completed reclamation work as required by the commission.		
Prior to authorization for site closure, the owner or operator must submit to the Director for review and approval a demonstration, based on monitoring and other site-specific data, that no additional monitoring is needed to ensure that the geologic sequestration project does not pose an endangerment to USDWs.	40 CFR §146.93(b)(3)	8. Before project completion, the closure period ends and at a time set by the commission , the storage operator shall provide a final assessment of the stored carbon dioxide's location, characteristics, and its future movement and location within the storage reservoir. (11) An assessment of the operations conducted during the operational period, including the volumes injected, volumes extracted, all chemical analyses conducted, and a summary of all monitoring efforts. The report must also document the stored carbon dioxide's location and characteristics and predict how it might move during the postclosure period;	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8; pg. 51 43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8 a (11); pg. 52	Add language that addresses the federal requirement that the owner/operator must submit to the Director a demonstration that no additional monitoring is needed to ensure the GS project no longer poses a risk of endangerment to USDWs.
If the demonstration in paragraph (b)(3) of this section cannot be made (i.e., additional monitoring is needed to ensure that the geologic sequestration project does not pose an endangerment to USDWs) at the end of the 50-year period or at the end of the approved alternative timeframe, or if the Director does not approve the demonstration, the owner or operator must submit to the Director a plan to continue post-injection site care until a demonstration can be made and approved by the Director.	40 CFR §146.93(b)(4)	5. The certificate may only be issued if the storage operator: a. Is in full compliance with all laws governing the storage facility. b. Shows that it has addressed all pending claims regarding the storage facility's operation. c. Shows that the storage reservoir is reasonably expected to retain the carbon dioxide stored in it. d. Shows that the carbon dioxide in the storage reservoir has become stable. Stored carbon dioxide is stable if it is essentially stationary or, if it is migrating or may migrate, that any migration will be unlikely to cross the storage reservoir boundary. e. Shows that all wells, equipment, and facilities to be used in the postclosure period are in good condition and retain mechanical integrity. f. Shows that it has plugged wells, removed equipment and	NDCC 38-22-17. Certificate of project completion - Release - Transfer of title and custody. Subsections 5 a through f; pg. 45	Add language to 5(d) that address the federal requirements that the carbon dioxide is not moving. "Unlikely to cross the storage reservoir boundary" is less stringent than the federal requirements.

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		facilities, and completed reclamation work as required by the commission.		
<i>Demonstration of alternative post-injection site care timeframe.</i> At the Director’s discretion, the Director may approve, in consultation with EPA, an alternative post-injection site care timeframe other than the 50 year default, if an owner or operator can demonstrate during the permitting process that an alternative post-injection site care timeframe is appropriate and ensures non-endangerment of USDWs. The demonstration must be based on significant, site-specific data and information including all data and information collected pursuant to §§146.82 and 146.83, and must contain substantial evidence that the geologic sequestration project will no longer pose a risk of endangerment to USDWs at the end of the alternative post-injection site care timeframe.	40 CFR §146.93(c)	<p>1. After carbon dioxide injections into a reservoir end and upon application by the storage operator, the commission shall consider issuing a certificate of project completion.</p> <p>2. The certificate may only be issued after public notice and hearing. The commission shall establish notice requirements for this hearing.</p> <p>3. The certificate may only be issued after the commission has consulted with the state department of health.</p> <p>4. The certificate may not be issued until at least ten years after carbon dioxide injections end.</p>	NDCC 38-22-17. Certificate of project completion - Release - Transfer of title and custody. Subsections 1 through 4; pg. 45	<p>Add language that addresses the federal requirement of including a provision for establishing an alternate PISC timeframe at the time of the permit application.</p> <p>Add language that addresses the federal requirement that the Director needs to consult EPA when approving an alternative post-injection site care timeframe other than the 50 year default.</p>
A demonstration of an alternative post-injection site care timeframe must include consideration and documentation of:	40 CFR §146.93(c)(1)	<u>a. The final assessment must include:</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 a; pg. 51	Add language that addresses “consideration and documentation of” when demonstrating an alternative post-injection site care timeframe.
The results of computational modeling performed pursuant to delineation of the area of review under §146.84;	40 CFR §146.93(c)(1)(i)	<u>(1) The results of computational modeling performed pursuant to delineation of the area of review under section 43-05-01-05.1;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 a (1); pg. 51	Okay.
The predicted timeframe for pressure decline within the injection zone, and any other zones, such that formation fluids may not be forced into any USDWs; and/or the timeframe for pressure decline to pre-	40 CFR §146.93(c)(1)(ii)	<u>(2) The predicted timeframe for pressure decline within the injection zone, and any other zones, such that formation fluids may not be forced into any underground sources of drinking water; or the timeframe for pressure decline to pre-</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u>	Okay.

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injection pressures;		<u>injection pressures;</u>	Subsection 8 a (2); pg. 51	
The predicted rate of carbon dioxide plume migration within the injection zone, and the predicted timeframe for the cessation of migration;	40 CFR §146.93(c)(1)(iii)	<u>(3) The predicted rate of carbon dioxide plume migration within the injection zone, and the predicted timeframe for the cessation of migration;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 a (3); pg. 51	Okay.
A description of the site-specific processes that will result in carbon dioxide trapping including immobilization by capillary trapping, dissolution, and mineralization at the site;	40 CFR §146.93(c)(1)(iv)	<u>(4) A description of the site-specific processes that will result in carbon dioxide trapping, including immobilization by capillary trapping, dissolution, and mineralization at the site;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 a (4); pg. 51	Okay.
The predicted rate of carbon dioxide trapping in the immobile capillary phase, dissolved phase, and/or mineral phase;	40 CFR §146.93(c)(1)(v)	<u>(5) The predicted rate of carbon dioxide trapping in the immobile capillary phase, dissolved phase, or mineral phase;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 a (5); pg. 52	Okay.
The results of laboratory analyses, research studies, and/or field or site-specific studies to verify the information required in paragraphs (iv) and (v) of this section;	40 CFR §146.93(c)(1)(vi)	<u>(6) The results of laboratory analyses, research studies, or field or site-specific studies to verify the information required in paragraphs (4) and (5) of this section;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 a (6); pg. 52	Okay.
A characterization of the confining zone(s) including a demonstration that it is free of transmissive faults, fractures, and micro-fractures and of appropriate thickness, permeability, and integrity to impede fluid (e.g., carbon dioxide, formation fluids) movement;	40 CFR §146.93(c)(1)(vii)	<u>(7) A characterization of the confining zone including a demonstration that it is free of transmissive faults, fractures, and micro-fractures, and an evaluation of thickness, permeability, and integrity to impede fluid (e.g., carbon dioxide, formation fluids) movement;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 a (7); pg. 52	Okay.

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The presence of potential conduits for fluid movement including planned injection wells and project monitoring wells associated with the proposed geologic sequestration project or any other projects in proximity to the predicted/modeled, final extent of the carbon dioxide plume and area of elevated pressure;	40 CFR §146.93(c)(1)(viii)	<u>(8) Any other projects in proximity to the predictive modeling of the final extent of the carbon dioxide plume and area of elevated pressures. The presence of potential conduits for fluid movement including planned injection wells and project monitoring wells associated with the proposed geologic sequestration project.</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8 a (8); pg. 52	Okay.
A description of the well construction and an assessment of the quality of plugs of all abandoned wells within the area of review;	40 CFR §146.93(c)(1)(ix)	<u>(9) A description of the well construction and an assessment of the quality of plugs of all abandoned wells within the area of review;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8 a (9); pg. 52	Okay.
The distance between the injection zone and the nearest USDWs above and/or below the injection zone; and	40 CFR §146.93(c)(1)(x)	<u>(10) The distance between the injection zone and the nearest underground source of drinking water above and below the injection zone;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8 a (10); pg. 52	Okay. Insert “and” at end.
Any additional site-specific factors required by the Director.	40 CFR §146.93(c)(1)(xi)	<u>(13) Any additional site-specific factors required by the commission.</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8 a (13); pg. 52	Okay.
Information submitted to support the demonstration in paragraph (c)(1) of this section must meet the following criteria:	40 CFR §146.93(c)(2)	<u>b. Information submitted to support the demonstration in subsection 8 subdivision a of this section must meet the following criteria:</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8 b; pg. 52	Okay.
All analyses and tests performed to support the demonstration must be accurate, reproducible, and performed in accordance with the established quality assurance standards;	40 CFR §146.93(c)(2)(i)	<u>(1) All analyses and tests for the final assessment must be accurate, reproducible, and performed in accordance with the established quality assurance standards. An approved quality assurance and quality control plan must address all aspects of the final assessment;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8 b (1); pg. 52	Okay.

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Estimation techniques must be appropriate and EPA-certified test protocols must be used where available;	40 CFR §146.93(c)(2)(ii)	<u>(2) Estimation techniques must be appropriate and test protocols certified by the Environmental Protection Agency must be used where available;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 b (2); pg. 53	Okay.
Predictive models must be appropriate and tailored to the site conditions, composition of the carbon dioxide stream and injection and site conditions over the life of the geologic sequestration project;	40 CFR §146.93(c)(2)(iii)	<u>(3) Predictive models must be appropriate and tailored to the site conditions, composition of the carbon dioxide stream and injection and site conditions over the life of the geologic sequestration project;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 b (3); pg. 53	Okay.
Predictive models must be calibrated using existing information (e.g., at Class I, Class II, or Class V experimental technology well sites) where sufficient data are available;	40 CFR §146.93(c)(2)(iv)	<u>(4) Predictive models must be calibrated using existing information where sufficient data are available;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 b (4); pg. 53	Okay.
Reasonably conservative values and modeling assumptions must be used and disclosed to the Director whenever values are estimated on the basis of known, historical information instead of site-specific measurements;	40 CFR §146.93(c)(2)(v)	<u>(5) Reasonably conservative values and modeling assumptions must be used and disclosed to the commission whenever values are estimated on the basis of known, historical information instead of site-specific measurements;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 b (5); pg. 53	Okay.
An analysis must be performed to identify and assess aspects of the alternative post-injection site care timeframe demonstration that contribute significantly to uncertainty. The owner or operator must conduct sensitivity analyses to determine the effect that significant uncertainty may contribute to the modeling demonstration.	40 CFR §146.93(c)(2)(vi)	<u>(6) An analysis must be performed to identify and assess aspects of the post-injection monitoring timeframe demonstration that contribute significantly to uncertainty. The storage operator shall conduct sensitivity analyses to determine the effect that significant uncertainty may contribute to the modeling demonstration; and</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 b (6); pg. 53	Okay.
An approved quality assurance and quality control plan must address all aspects of the demonstration; and,	40 CFR §146.93(c)(2)(vii)	<u>An approved quality assurance and quality control plan must address all aspects of the final assessment;</u>	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE.</u> Subsection 8 b (1), second sentence; pg. 53	Okay. Insert “and” at end.

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Any additional criteria required by the Director.	40 CFR §146.93(c)(2)(viii)	(7) Any additional criteria required by the commission.	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8 b (7); pg. 53	Okay.
<i>Notice of intent for site closure.</i> The owner or operator must notify the Director in writing at least 120 days before site closure. At this time, if any changes have been made to the original post-injection site care and site closure plan, the owner or operator must also provide the revised plan. The Director may allow for a shorter notice period.	40 CFR §146.93(d)	1. After carbon dioxide injections into a reservoir end and upon application by the storage operator, the commission shall consider issuing a certificate of project completion. 7.5- The commission shall develop in conjunction with the storage operator a continuing monitoring plan for the postclosure period, including a review and final approval of wells to be plugged.	NDCC 38-22-17. Certificate of project completion - Release - Transfer of title and custody. Subsections 1; pg. 45 43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 7; pg. 51	Add language that addresses the federal requirement that the storage operator must notify the commission in writing within 120 days before site closure. Add language that addresses the federal requirement that allows for a revised plan to be submitted to the commission.
After the Director has authorized site closure, the owner or operator must plug all monitoring wells in a manner which will not allow movement of injection or formation fluids that endangers a USDW.	40 CFR §146.93(e)	2. The storage operator shall specify in submit a the post-injection site care and facility closure monitoring plan for the closure period for approval by the commission, including a proposal specifying which wells will be plugged and which will remain unplugged to be used as subsurface observation wells. Subsurface observation and ground water monitoring wells as approved in the plan must remain in place for continued monitoring during the closure and postclosure periods. 5.3- Upon cessation of injection, all wells not associated with monitoring must be properly plugged and abandoned in accordance with section 43-05-01-11.5; all storage facility equipment, appurtenances, and structures not associated with monitoring must be removed. Following well plugging and removal of all surface equipment, the surface must be reclaimed to the commission's specifications that will, in general, return the land as closely as practicable to original condition.	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 2; pg. 50 43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 5; pg. 51	Add language that addresses the federal requirement that the owner/operator must plug all monitoring wells in a manner which will not allow movement of injection or formation fluids that endangers a USDW.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
The owner or operator must submit a site closure report to the Director within 90 days of site closure, which must thereafter be retained at a location designated by the Director for 10 years. The report must include:	40 CFR §146.93(f)	<p>Formatting retained from original; text moved from far right column unless otherwise noted.</p> <p>9. The storage operator shall retain records until project completion. Upon project completion the storage operator shall deliver any records required in this section to the commission. The following records shall be retained:</p> <p>d. All records from the closure period including well plugging reports, post-injection site care data, and the final assessment;</p>	<p>43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS.</p> <p>Subsection 9 subdivision d; pg. 49</p>	<p>Add language that addresses the federal requirement that the owner/operator must submit a site closure report to the Director within 90 days of site closure.</p> <p>Add language that addresses the federal requirement that the site closure report must be retained for at least 10 years after site closure.</p>
Documentation of appropriate injection and monitoring well plugging as specified in §146.92 and paragraph (e) of this section. The owner or operator must provide a copy of a survey plat which has been submitted to the local zoning authority designated by the Director. The plat must indicate the location of the injection well relative to permanently surveyed benchmarks. The owner or operator must also submit a copy of the plat to the Regional Administrator of the appropriate EPA Regional Office;	40 CFR §146.93(f)(1)	<p>a. An accurate plat certified by a registered A-plat prepared by a licensed land surveyor showing the location of the proposed injection or subsurface observation well. The plat must be drawn to the scale of one inch [25.4 millimeters] equals one thousand feet [304.8 meters], unless otherwise directed by the commission, and must show distances from the proposed well to the nearest storage reservoir facility area boundary. The plat must show the latitude and longitude of the proposed well in decimal degrees to five significant digits, location to the nearest tenth of a second. The plat must also show the location and status of all other wells that have been drilled within one-fourth mile [402.34 meters], or any other distance deemed necessary by the commission, of the proposed injection or subsurface observation well;</p>	<p>43-05-01-09. WELL PERMIT APPLICATION REQUIREMENTS.</p> <p>Subsection 2 a; pg. 21</p>	<p>The ND citation refers to well permit application requirements instead of post-injection site closure. (See text highlighted in red.)</p> <p>This plat survey must be included in the post closure report. There's a question of timing or accuracy of the plat survey if the plat survey used in the permit application is used for the site closure report. There could be changes in the location of the well(s) or other changes.</p> <p>Add language that addresses the federal requirement that the owner/operator must submit a copy of the plat to the Regional Administrator of the appropriate EPA Regional Office.</p>
Documentation of appropriate notification and information to such State, local and Tribal authorities that have authority over drilling activities to enable such State, local, and Tribal authorities to impose appropriate conditions on subsequent drilling activities that may penetrate the injection and	40 CFR §146.93(f)(2)	<p>2. The certificate may only be issued after public notice and hearing. The commission shall establish notice requirements for this hearing.</p>	<p>NDCC 38-22-17. Certificate of project completion - Release - Transfer of title and custody.</p> <p>Subsection 2; pg. 45</p>	<p>Add language that addresses the federal requirement to notify the state, local, and tribal authorities referenced in 40 CFR 146.93(f)(2).</p>

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confining zone(s); and				
Records reflecting the nature, composition, and volume of the carbon dioxide stream.	40 CFR §146.93(f)(3)	(11) An assessment of the operations conducted during the operational period, including the volumes injected, volumes extracted, all chemical analyses conducted, and a summary of all monitoring efforts. The report must also document the stored carbon dioxide's location and characteristics and predict how it might move during the postclosure period;	43-05-01-19. <u>POST-INJECTION SITE CARE AND FACILITY CLOSURE</u> . Subsection 8 a (11); pg. 53	Okay.
Each owner or operator of a Class VI injection well must record a notation on the deed to the facility property or any other document that is normally examined during title search that will in perpetuity provide any potential purchaser of the property the following information:	40 CFR §146.93(g)	When the commission issues a permit it shall also issue a certificate stating that the permit has been issued, describing the area covered, and containing other information the commission deems appropriate. The commission shall file a copy of the certificate with the county recorder in the county or counties where the storage facility is located. The storage operator has title to the carbon dioxide injected into and stored in a storage reservoir and holds title until the commission issues a certificate of project completion. a. Title to the storage facility and to the stored carbon dioxide transfers, without payment of any compensation, to the state. b. Title acquired by the state includes all rights and interests in, and all responsibilities associated with, the stored carbon dioxide.	NDCC 38-22-11. Certificate. First paragraph; pg. 44 NDCC 38-22-16. Title to carbon dioxide. Paragraph; ; pg. 45 NDCC 38-22-17. Certificate of project completion - Release - Transfer of title and custody. Subsection 6 a and b; pg. 46	Add language "permit has been issued to sequester carbon dioxide." (See highlighted text in red.)
The fact that land has been used to sequester carbon dioxide;	40 CFR §146.93(g)(1)	When the commission issues a permit it shall also issue a certificate stating that the permit has been issued, describing the area covered, and containing other information the commission deems appropriate. The commission shall file a copy of the certificate with the county recorder in the county or counties where the storage facility is located. The storage operator has title to the carbon dioxide injected into and stored in a storage reservoir and holds title until the commission issues a certificate of project completion.	NDCC 38-22-11. Certificate. First paragraph; pg. 44 NDCC 38-22-16. Title to carbon dioxide. Paragraph; ; pg. 45	The certificate issued under NDCC38-22-11 must state that a permit has been issued. However, it is issued before injection, not after, and NDCC38-22-11 does not specifically require that the certificate state that the land has been used to sequester CO ₂ . See comment above.

Federal Requirement	Federal Citation	State Requirement	State Citation	Different From Federal Requirement?
The name of the State agency, local authority, and/or Tribe with which the survey plat was filed, as well as the address of the Environmental Protection Agency Regional Office to which it was submitted; and	40 CFR §146.93(g)(2)	Formatting retained from original; text moved from far right column unless otherwise noted. When the commission issues a permit it shall also issue a certificate stating that the permit has been issued, describing the area covered, and containing other information the commission deems appropriate. The commission shall file a copy of the certificate with the county recorder in the county or counties where the storage facility is located.	NDCC 38-22-11. Certificate. First paragraph; pg. 44	Add language to address the federal requirement that the certificate include the name of the state agency/local authority/tribe or the address of the EPA regional office.
The volume of fluid injected, the injection zone or zones into which it was injected, and the period over which injection occurred.	40 CFR §146.93(g)(3)	(11) An assessment of the operations conducted during the operational period, including the volumes injected, volumes extracted, all chemical analyses conducted, and a summary of all monitoring efforts. The report must also document the stored carbon dioxide's location and characteristics and predict how it might move during the postclosure period;	43-05-01-19. POST-INJECTION SITE CARE AND FACILITY CLOSURE. Subsection 8 a (11); pg. 53	The information listed in 43-05-01-19, subsection 8a is included in the final assessment, not the notation on the deed/equivalent document. Add language that addresses the volume of the fluid injected ... is recorded on the deed.
The owner or operator must retain for 10 years following site closure, records collected during the post-injection site care period. The owner or operator must deliver the records to the Director at the conclusion of the retention period, and the records must thereafter be retained at a location designated by the Director for that purpose.	40 CFR §146.93(h)	9. The storage operator shall retain records until project completion. Upon project completion the storage operator shall deliver any records required in this section to the commission. The following records shall be retained: d. All records from the closure period including well plugging reports, post-injection site care data, and the final assessment;	43-05-01-18. QUARTERLY AND ANNUAL REPORTING REQUIREMENTS. Subsection 9 subdivision d; pg. 49	Add language that addresses the federal requirement to retain data for plugging and PISC data at least 10 years after site closure.
40 CFR §146.94 Emergency and remedial response.				
As part of the permit application, the owner or operator must provide the Director with an emergency and remedial response plan that describes actions the owner or operator must take to address movement of the injection or formation fluids that may cause an endangerment to a USDW during construction, operation, and post-injection site care periods. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.	40 CFR §146.94(a)	1. The emergency and remedial response plan requires a description of the actions the storage operator shall take to address movement of the injection or formation fluids that may endanger an underground source of drinking water during construction, operation, and post-injection site care periods. The plan must also detail:	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 1; pg. 44	Add language that addresses the federal requirement that the project plans are directly enforceable regardless of whether the requirement is a condition of the permit.
If the owner or operator obtains evidence that the	40 CFR	2. If the storage operator obtains evidence that the injected	43-05-01-13. STORAGE	Okay.

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injected carbon dioxide stream and associated pressure front may cause an endangerment to a USDW, the owner or operator must:	§146.94(b)	<u>carbon dioxide stream and associated pressure front may endanger an underground source of drinking water, the storage operator shall:</u>	FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 2; pg. 45	
Immediately cease injection;	40 CFR §146.94(b)(1)	<u>a. Immediately cease injection:</u>	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 2 a; pg. 45	Okay.
Take all steps reasonably necessary to identify and characterize any release;	40 CFR §146.94(b)(2)	<u>b. Take all steps reasonably necessary to identify and characterize any release;</u>	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 2 b; pg. 45	Okay.
Notify the Director within 24 hours; and	40 CFR §146.94(b)(3)	<u>c. Notify the commission within 24 hours; and</u>	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 2 c; pg. 45	Okay.
Implement the emergency and remedial response plan approved by the Director.	40 CFR §146.94(b)(4)	<u>d. Implement the emergency and remedial response plan approved by the commission.</u>	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 2 d; pg. 45	Okay.

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The Director may allow the operator to resume injection prior to remediation if the owner or operator demonstrates that the injection operation will not endanger USDWs.	40 CFR §146.94(c)	<u>3. The commission may allow the operator to resume injection prior to remediation if the storage operator demonstrates that the injection operation will not endanger underground sources of drinking water.</u>	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 3; pg. 45	Okay.
The owner or operator shall periodically review the emergency and remedial response plan developed under paragraph (a) of this section. In no case shall the owner or operator review the emergency and remedial response plan less often than once every five years. Based on this review, the owner or operator shall submit an amended emergency and remedial response plan or demonstrate to the Director that no amendment to the emergency and remedial response plan is needed. Any amendments to the emergency and remedial response plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at §§144.39 or 144.41 of this chapter, as appropriate. Amended plans or demonstrations shall be submitted to the Director as follows:	40 CFR §146.94(d)	<u>4. The storage operator shall review annually the emergency and remedial response plan developed under paragraph 1 of this section. Based on this review, the storage operator shall submit to the commission an amended plan or demonstrate to the commission that no amendment to the plan is needed. Any amendments to the plan are subject to the commission's approval, must be incorporated into the storage facility permit, and are subject to the permit modification requirements. Amended plans or demonstrations that amendments are not needed shall be submitted to the commission as follows:</u>	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 4; pg. 45	Okay.
Within one year of an area of review reevaluation;	40 CFR §146.94(d)(1)	<u>a. Within one year of an area of review reevaluation;</u>	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 4 a; pg. 45	Okay.
Following any significant changes to the facility, such as addition of injection or monitoring wells, on a schedule determined by the Director; or	40 CFR §146.94(d)(2)	<u>b. Following any significant changes to the facility, such as addition of injection or monitoring wells, on a schedule determined by the commission; or</u>	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL	Okay.

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			<u>RESPONSE PLANS</u> Subsection 4 b; pg. 45	
When required by the Director.	40 CFR §146.94(d)(3)	<u>c. When required by the commission.</u>	43-05-01-13. STORAGE FACILITY OPERATIONAL SAFETY EMERGENCY AND REMEDIAL RESPONSE PLANS Subsection 4 c; pg. 45	Okay.
40 CFR §146.95 Class VI injection depth waiver requirements.				
This section sets forth information which an owner or operator seeking a waiver of the Class VI injection depth requirements must submit to the Director; information the Director must consider in consultation with all affected Public Water System Supervision Directors; the procedure for Director – Regional Administrator communication and waiver issuance; and the additional requirements that apply to owners or operators of Class VI wells granted a waiver of the injection depth requirements.	40 CFR §146.95	<u>b. A review of the commission’s consultation with the state department of health and federally recognized Indian tribes having jurisdiction over lands within the area of review for the injection well for which a waiver is sought.</u> <u>e. The results of the consultation with the department of health.</u> <u>4. Following public notice, the commission shall provide all information received through the waiver application process to the United States Environmental Protection Agency Regional Administrator.</u>	43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 b; pg. 41 43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 3 e; pg. 41 43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 4; pg. 41	Okay.
In seeking a waiver of the requirement to inject below the lowermost USDW, the owner or operator must submit a supplemental report concurrent with permit application. The supplemental report must include the following,	40 CFR §146.95(a)	<u>1. In seeking a waiver of the requirement to inject below the lowermost underground sources of drinking water, the storage operator shall submit a supplemental report concurrent with the storage facility permit application. The supplemental report must:</u>	43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 1; pg. 39	Okay.
A demonstration that the injection zone(s) is/are laterally continuous, is not a USDW, and is not hydraulically connected to USDWs; does not	40 CFR §146.95(a)(1)	<u>a. Demonstrate that the injection zone is laterally continuous, is not an underground source of drinking water, and is not hydraulically connected to underground sources</u>	43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u>	Okay.

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outcrop; has adequate injectivity, volume, and sufficient porosity to safely contain the injected carbon dioxide and formation fluids; and has appropriate geochemistry.		<u>of drinking water; does not outcrop; has adequate injectivity, volume, and sufficient porosity to safely contain the injected carbon dioxide and formation fluids; and has appropriate geochemistry;</u>	Subsection 1 a; pg. 39	
A demonstration that the injection zone(s) is/are bounded by laterally continuous, impermeable confining units above and below the injection zone(s) adequate to prevent fluid movement and pressure buildup outside of the injection zone(s); and that the confining unit(s) is/are free of transmissive faults and fractures. The report shall further characterize the regional fracture properties and contain a demonstration that such fractures will not interfere with injection, serve as conduits, or endanger USDWs.	40 CFR §146.95(a)(2)	<u>b. Demonstrate that the injection zone is bounded by laterally continuous, impermeable confining units above and below the injection zone adequate to prevent fluid movement and pressure buildup outside of the injection zone; and that the confining unit is free of transmissive faults and fractures. The report shall further characterize the regional fracture properties and demonstrate that such fractures will not interfere with injection, serve as conduits, or endanger underground sources of drinking water;</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 1 b; pg. 39-40	Okay.
A demonstration, using computational modeling, that USDWs above and below the injection zone will not be endangered as a result of fluid movement. This modeling should be conducted in conjunction with the area of review determination, as described in §146.84, and is subject to requirements, as described in §146.84(c), and periodic reevaluation, as described in §146.84(e).	40 CFR §146.95(a)(3)	<u>c. Demonstrate, using computational modeling, that underground sources of drinking water above and below the injection zone will not be endangered as a result of fluid movement. This modeling must be conducted in conjunction with the area of review determination, and is subject to requirements and periodic reevaluation.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 1 c; pg. 40	Add reference to §146.84(c) and §146.84(e) or the NDIC code equivalent.
A demonstration that well design and construction, in conjunction with the waiver, will ensure isolation of the injectate in lieu of requirements at 146.86(a)(1) and will meet well construction requirements in paragraph (f) of this section.	40 CFR §146.95(a)(4)	<u>d. Demonstrate that well design and construction, in conjunction with the waiver, will ensure isolation of the injectate in lieu of requirements and will meet well construction requirements;</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 1 d; pg. 40	Add reference to §146.8(a)(1) and paragraph (f) or the NDIC code equivalent.
A description of how the monitoring and testing and any additional plans will be tailored to the geologic sequestration project to ensure protection of USDWs above and below the injection zone(s), if a waiver is	40 CFR §146.95(a)(5)	<u>e. Describe how the monitoring and testing and any additional plans will be tailored to the geologic sequestration project to ensure protection of underground sources of drinking water above and below the injection</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u>	Okay.

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granted.		<u>zone, if a waiver is granted;</u>	Subsection 1 e; pg. 40	
Information on the location of all the public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review.	40 CFR §146.95(a)(6)	<u>f. Provide information on the location of all the public water supplies affected, reasonably likely to be affected, or served by underground sources of drinking water in the area of review; and</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 1 f; pg. 40	Okay.
Any other information requested by the Director to inform the Regional Administrator’s decision to issue a waiver.	40 CFR §146.95(a)(7)	<u>g. Provide any other information requested by the commission that the United States Environmental Protection Agency Regional Administrator might find useful in making the decision whether or not to issue a waiver.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 1 g; pg. 40	Okay.
To inform the Regional Administrator’s decision on whether to grant a waiver of the injection depth requirements at §§144.6 of this chapter, 146.5(f), and 146.86(a)(1), the Director must submit, to the Regional Administrator, documentation of the following :	40 CFR §146.95(b)	<u>2. To assist the United States Environmental Protection Agency Regional Administrator’s in making the decision whether to grant a waiver of the injection depth requirements, the commission shall submit, to the Regional Administrator, documentation of the following:</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2; pg. 40	Delete the “s” after “Regional Administrator.”
An evaluation of the following information as it relates to siting, construction, and operation of a geologic sequestration project with a waiver:	40 CFR §146.95(b)(1)	<u>a. An evaluation of the following information as it relates to siting, construction, and operation of a geologic sequestration project with a waiver:</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 a; pg. 40	Okay.
The integrity of the upper and lower confining units;	40 CFR §146.95(b)(1)(i)	<u>(1) The integrity of the upper and lower confining units;</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 a (1); pg. 40	Okay.
The suitability of the injection zone(s) (e.g., lateral continuity; lack of transmissive faults and fractures; knowledge of current or planned artificial penetrations into the injection zone(s) or formations below the injection zone);	40 CFR §146.95(b)(1)(ii)	<u>(2) The suitability of the injection zone (e.g., lateral continuity; lack of transmissive faults and fractures; knowledge of current or planned artificial penetrations into the injection zone or formations below the injection zone);</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 a (2); pg. 40	Okay.

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The potential capacity of the geologic formation(s) to sequester carbon dioxide, accounting for the availability of alternative injection sites;	40 CFR §146.95(b)(1)(iii)	<u>(3) The potential capacity of the geologic formation to sequester carbon dioxide, accounting for the availability of alternative injection sites;</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 a (3); pg. 40	Okay.
All other site characterization data, the proposed emergency and remedial response plan, and a demonstration of financial responsibility;	40 CFR §146.95(b)(1)(iv)	<u>(4) All other site characterization data, the proposed emergency and remedial response plan, and a demonstration of financial responsibility;</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 a (4); pg. 40	Okay.
Community needs, demands, and supply from drinking water resources;	40 CFR §146.95(b)(1)(v)	<u>(5) Community needs, demands, and supply from drinking water resources;</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 a (5); pg. 40	Okay.
Planned needs, potential and/or future use of USDWs and non-USDWs in the area;	40 CFR §146.95(b)(1)(vi)	<u>(6) Planned needs, potential and future use of underground sources of drinking water and non- underground sources of drinking water in the area;</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 a (6); pg. 41	Okay.
Planned or permitted water, hydrocarbon, or mineral resource exploitation potential of the proposed injection formation(s) and other formations both above and below the injection zone to determine if there are any plans to drill through the formation to access resources in or beneath the proposed injection zone(s)/formation(s);	40 CFR §146.95(b)(1)(vii)	<u>(7) Planned or permitted water, hydrocarbon, or mineral resource exploitation potential of the proposed injection formation and other formations both above and below the injection zone to determine if there are any plans to drill through the formation to access resources in or beneath the proposed injection zone;</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 a (7); pg. 41	Okay.
The proposed plan for securing alternative resources or treating USDW formation waters in the event of contamination related to the Class VI injection activity; and,	40 CFR §146.95(b)(1)(viii)	<u>(8) The proposed plan for securing alternative resources or treating underground sources of drinking water in the event of contamination related to the carbon dioxide injection well activity; and,</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 a (8); pg. 41	Okay.
Any other applicable considerations or information requested by the Director.	40 CFR §146.95(b)(1)(ix)	<u>(9) Any other applicable considerations or information requested by the commission.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER</u>	Okay.

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
			<u>REQUIREMENTS.</u> Subsection 2 a (9); pg. 41	
Consultation with the Public Water System Supervision Directors of all States and Tribes having jurisdiction over lands within the area of review of a well for which a waiver is sought.	40 CFR §146.95(b)(2)	<u>b. A review of the commission’s consultation with the state department of health and federally recognized Indian tribes having jurisdiction over lands within the area of review for the injection well for which a waiver is sought.</u>	43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 b; pg. 41	Okay. Is the department of health the same as the PWSS?
Any written waiver-related information submitted by the Public Water System Supervision Director(s) to the (UIC) Director.	40 CFR §146.95(b)(3)	<u>c. Any written waiver-related information submitted by the state department of health to the commission.</u>	43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 2 c; pg. 41	Okay. Is the department of health the same as the PWSS?
Pursuant to requirements at §124.10 of this chapter and concurrent with the Class VI permit application notice process, the Director shall give public notice that a waiver application has been submitted. The notice shall clearly state:	40 CFR §146.95(c)	<u>3. The commission shall give public notice that a waiver application has been submitted. The notice must include a map of the area of review and state:</u>	43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 3; pg. 41	Add reference to 40 CFR §124.10 or add language that references the federal public notification requirements for permits.
The depth of the proposed injection zone(s);	40 CFR §146.95(c)(1)	<u>a. The depth of the proposed injection zone;</u>	43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 3 a; pg. 41	Okay.
The location of the injection well(s);	40 CFR §146.95(c)(2)	<u>b. The location of the injection well;</u>	43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 3 b; pg. 41	Okay.
The name and depth of all USDWs within the area of review;	40 CFR §146.95(c)(3)	<u>c. The name and depth of all underground sources of drinking water within the area of review;</u>	43-05-01-11.6. <u>INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 3 c; pg. 41	Okay.
A map of the area of review;	40 CFR	<u>The notice must include a map of the area of review and</u>	43-05-01-11.6. <u>INJECTION</u>	Okay.

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	§ 146.95(c)(4)	<u>state:</u>	<u>DEPTH WAIVER REQUIREMENTS.</u> Subsection 3, second sentence; pg. 41	
The names of any public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review; and,	40 CFR § 146.95(c)(5)	<u>d. The names of any public water supplies affected, reasonably likely to be affected, or served by underground sources of drinking water in the area of review; and</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 3 d; pg. 41	Okay.
The results of UIC-Public Water System Supervision consultation required under paragraph (b)(2) of this section.	40 CFR § 146.95(c)(6)	<u>e. The results of the consultation with the department of health.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 3 e; pg. 41	Okay. Is the department of health the same as the PWSS?
Following public notice, the Director shall provide all information received through the waiver application process to the Regional Administrator. Based on the information provided, the Regional Administrator shall provide written concurrence or non-concurrence regarding waiver issuance.	40 CFR § 146.95(d)	<u>4. Following public notice, the commission shall provide all information received through the waiver application process to the United States Environmental Protection Agency Regional Administrator.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 4; pg. 41	Okay.
If the Regional Administrator determines that additional information is required to support a decision, the Director shall provide the information. At his or her discretion, the Regional Administrator may require that public notice of the new information be initiated.	40 CFR § 146.95(d)(1)	<u>a. If the Regional Administrator determines that additional information is required to support a decision, the commission shall request that the applicant for the waiver provide the information.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 4 a; pg. 41	Okay.
In no case shall a Director of a State-approved program issue a waiver without receipt of written concurrence from the Regional Administrator.	40 CFR § 146.95(d)(2)	<u>b. The commission may not issue a waiver without written concurrence from the Regional Administrator.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 4 b; pg. 42	Okay.
If a waiver is issued, within 30 days of waiver	40 CFR		N/A	Okay.

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issuance, EPA shall post the following information on the Office of Water's Web site:	§146.95(e)			
The depth of the proposed injection zone(s);	40 CFR §146.95(e)(1)		N/A	Okay.
The location of the injection well(s);	40 CFR §146.95(e)(2)		N/A	Okay.
The name and depth of all USDWs within the area of review;	40 CFR §146.95(e)(3)		N/A	Okay.
A map of the area of review;	40 CFR §146.95(e)(4)		N/A	Okay.
The names of any public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review; and	40 CFR §146.95(e)(5)		N/A	Okay.
The date of waiver issuance.	40 CFR §146.95(e)(6)		N/A	Okay.
Upon receipt of a waiver of the requirement to inject below the lowermost USDW for geologic sequestration, the owner or operator of the Class VI well must comply with:	40 CFR §146.95(f)	<u>5. Upon receipt of a waiver, the storage operator shall comply with:</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5; pg. 42	Okay.
All requirements at §§146.84, 146.85, 146.87, 146.88, 146.89, 146.91, 146.92, and 146.94;	40 CFR §146.95(f)(1)	<u>a. All requirements in sections 43-05-01-9.1, 43-05-01-9.2, 43-05-01-11.1, 43-05-01-11.2, 43-05-01-11.3, 43-05-01-11.5, 43-05-01-13, and 43-05-01-18</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 a; pg. 42	Okay.
All requirements at §146.86 with the following modified requirements:	40 CFR §146.95(f)(2)	<u>b. All requirements in section 43-05-01-11 with the following modifications:</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 b; pg. 42	Okay.

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The owner or operator must ensure that Class VI wells with a waiver are constructed and completed to prevent movement of fluids into any unauthorized zones including USDWs, in lieu of requirements at §146.86(a)(1).	40 CFR §146.95(f)(2)(i)	(1) Injection wells must be constructed and completed to prevent movement of fluids into any unauthorized zones including underground sources of drinking water.	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 b (1); pg. 42	Okay. May want to add “in lieu of requirements at...”
The casing and cementing program must be designed to prevent the movement of fluids into any unauthorized zones including USDWs in lieu of requirements at §146.86(b)(1).	40 CFR §146.95(f)(2)(ii)	<u>(2) The casing and cementing program must be designed to prevent the movement of fluids into any unauthorized zones including underground sources of drinking water in lieu of requirements in section 43-05-01-11.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 b (2); pg. 42	Okay.
The surface casing must extend through the base of the nearest USDW directly above the injection zone and be cemented to the surface; or, at the Director’s discretion, another formation above the injection zone and below the nearest USDW above the injection zone.	40 CFR §146.95(f)(2)(iii)	<u>(3) The surface casing must extend through the base of the nearest underground source of drinking water directly above the injection zone and be cemented to the surface; or, at the commission’s discretion, another formation above the injection zone and below the nearest underground source of drinking water above the injection zone.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 b (3); pg. 42	Okay.
All requirements at §146.90 with the following modified requirements:	40 CFR §146.95(f)(3)	<u>c. All requirements in section 43-05-01-11.4 with the following modifications:</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 c; pg. 42	Okay.
The owner or operator shall monitor the groundwater quality, geochemical changes, and pressure in the first USDWs immediately above and below the injection zone(s); and in any other formations at the discretion of the Director.	40 CFR §146.95(f)(3)(i)	<u>(1) Groundwater quality, geochemical changes, and pressure in the first underground source of drinking water immediately above and below the injection zone, and in any other formations at the discretion of the commission, must be monitored.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 c (1); pg. 42	Okay.

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Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods to monitor for pressure changes in the injection zone(s); and, indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Director determines, based on site-specific geology, that such methods are not appropriate.	40 CFR §146.95(f)(3)(ii)	<u>(2) Test and monitor to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods to monitor for pressure changes in the injection zone, and indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys or down-hole carbon dioxide detection tools), unless the commission determines based on site-specific geology that such methods are not appropriate.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 c (2); pg. 42	Okay.
All requirements at §146.93 with the following, modified post-injection site care monitoring requirements:	40 CFR §146.95(f)(4)	<u>d. All requirements in section 43-05-01-19 with the following modifications for post-injection site care monitoring requirements:</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 d; pg. 42	Okay.
The owner or operator shall monitor the groundwater quality, geochemical changes and pressure in the first USDWs immediately above and below the injection zone; and in any other formations at the discretion of the Director.	40 CFR §146.95(f)(4)(i)	<u>(1) Groundwater quality, geochemical changes and pressure in the first underground source of drinking water immediately above and below the injection zone, and in any other formations at the discretion of the commission, must be monitored.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 d (1); pg. 42	Okay.
Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods in the injection zone(s); and indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Director determines based on site-specific geology, that such methods are not appropriate;	40 CFR §146.95(f)(4)(ii)	<u>(2) Test and monitor to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods in the injection zone, and indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys or down-hole carbon dioxide detection tools), unless the commission determines based on site-specific geology that such methods are not appropriate;</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u> Subsection 5 d (2); pg. 43	Okay.
(5) Any additional requirements requested by the Director designed to ensure protection of USDWs above and below the injection zone(s).	40 CFR §146.95(f)(5)	<u>e. Any additional requirements requested by the commission to ensure protection of underground sources of drinking water above and below the injection zone.</u>	<u>43-05-01-11.6. INJECTION DEPTH WAIVER REQUIREMENTS.</u>	Okay.

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			Subsection 5 e; pg. 43	
STATE UIC PROGRAM REQUIREMENTS				
PART 124--PROCEDURES AND DECISIONMAKING				
SUBPART A--GENERAL PROGRAM REQUIREMENTS				
40 CFR §124.10 Public notice of permit actions and public comment period.				
Methods (applicable to State programs, see 40 CFR 123.25 (NPDES), 145.11 (UIC), 233.23 (404), and 271.14 (RCRA)). Public notice of activities described in paragraph (a)(1) of this section shall be given by the following methods:	40 CFR §124.10(c)	<ol style="list-style-type: none"> 1. The commission shall hold a public hearing before issuing a permit. 2. Notice of the hearing must be published for two consecutive weeks in the official newspaper of the county or counties where the storage reservoir is proposed to be located and in any other newspaper the commission requires. Publication deadlines must comply with commission requirements. 3. Notice of the hearing must be given to each mineral lessee, mineral owner, and pore space owner within the storage reservoir and within one-half mile of the storage reservoir's boundaries. 4. Notice of the hearing must be given to each surface owner of land overlying the storage reservoir and within one-half mile of the reservoir's boundaries. 5. Notice of the hearing must be given to any additional persons that the commission requires. 	NDCC 38-22-06. Permit hearing - Hearing notice. Subsections 1 through 5; pg. 42	See 40 CFR §124 for federal public notification requirements for issuing UIC permits. Add language that addresses the public notification requirements as well as allowing for written comments in addition to the public hearing.
For Class VI injection well UIC permits, mailing or emailing a notice to State and local oil and gas regulatory agencies and State agencies regulating mineral exploration and recovery, the Director of the Public Water Supply Supervision program in the State, and all agencies that oversee injection wells in the State.	40 CFR §124.10(c)(1)(xi)	Before issuing a permit, the commission shall consult the state department of health.	NDCC 38-22-07. Permit consultation. First sentence; pg. 43	There are other agencies that may need to be consulted, such as state and local oil and gas agencies.

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PART 145--STATE UIC PROGRAM REQUIREMENTS				
SUBPART A--GENERAL PROGRAM REQUIREMENTS				
40 CFR §145.1 Purpose and scope.				
States seeking primary enforcement responsibility for Class VI wells must submit a primacy application in accordance with subpart C of this part and meet all requirements of this part. States may apply for primary enforcement responsibility for Class VI wells independently of other injection well classes.	40 CFR §145.1(i)			
SUBPART C--STATE PROGRAM SUBMISSIONS				
40 CFR §145.21 General requirements for program approvals.				
To establish a Federal UIC Class VI program in States not seeking full UIC primary enforcement responsibility approval, pursuant to the SDWA section 1422(c), States shall, by [INSERT DATE 270 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], submit to the Administrator a new or revised State UIC program complying with §§145.22 or 145.32 of this part. Beginning on [INSERT DATE 270 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] the requirements of subpart H of part 146 will be applicable and enforceable by EPA in each State that has not received approval of a new Class VI program application under section 1422 of the Safe Drinking Water Act or a revision of its UIC program under section 1422 of the Safe Drinking Water Act to incorporate subpart H of part 146. Following [INSERT DATE 270 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER],	40 CFR §145.21(h)			

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EPA will publish a list of the States where subpart H of part 146 has become applicable.				
40 CFR §145.22 Elements of a program submission.				
Any State that seeks to administer a program under this part shall submit to the Administrator at least three copies of a program submission. For Class VI programs, the entire submission can be sent electronically. The submission shall contain the following:	40 CFR §145.22(a)			
Copies of all applicable State statutes and regulations, including those governing State administrative procedures;	40 CFR §145.22(a)(5)			
40 CFR §145.23 Program description.				
Any State that seeks to administer a program under this part shall submit a description of the program it proposes to administer in lieu of the Federal program under State law or under an interstate compact. For Class VI programs, the entire submission can be sent electronically. The program description shall include:	40 CFR §145.23			

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
A description of applicable State procedures, including permitting procedures and any State administrative or judicial review procedures.	40 CFR §145.23(c)			
Copies of the permit form(s), application form(s), reporting form(s), and manifest format the State intends to employ in its program. Forms used by States need not be identical to the forms used by EPA but should require the same basic information. The State need not provide copies of uniform national forms it intends to use but should note its intention to use such forms. For Class VI programs, submit copies of the current forms in use by the State, if any.	40 CFR §145.23(d)			
A schedule for issuing permits within five years after program approval to all injection wells within the State which are required to have permits under this part and 40 CFR part 144. For Class VI programs, a schedule for issuing permits within two years after program approval;	40 CFR §145.23(f)(1)			
The priorities (according to criteria set forth in §146.9 of this chapter) for issuing permits, including the number of permits in each class of injection well which will be issued each year during the first five years of program operation. For Class VI programs, include the priorities for issuing permits and the number of permits which will be issued during the first two years of program operation;	40 CFR §145.23(f)(2)			
A description of how the Director will implement the mechanical integrity testing requirements of §146.8 of this chapter, or, for Class VI wells, the mechanical integrity testing requirements of §146.89 of this chapter, including the frequency of testing that will	40 CFR §145.23(f)(3)			

Federal Requirement	Federal Citation	State Requirement Formatting retained from original; text moved from far right column unless otherwise noted.	State Citation	Different From Federal Requirement?
be required and the number of tests that will be reviewed by the Director each year;				
A description of the procedure whereby the Director will notify owners or operators of injection wells of the requirement that they apply for and obtain a permit. The notification required by this paragraph shall require applications to be filed as soon as possible, but not later than four years after program approval for all injection wells requiring a permit. For Class VI programs approved before [INSERT DATE 365 DAYS AFTER PUBLICATION], a description of the procedure whereby the Director will notify owners or operators of any Class I wells previously permitted for the purpose of geologic sequestration or Class V experimental technology wells no longer being used for experimental purposes that will continue injection of carbon dioxide for the purpose of GS that they must apply for a Class VI permit pursuant to requirements at §146.81(c) within one year of [INSERT DATE 365 DAYS AFTER PUBLICATION]. For Class VI programs approved following [INSERT DATE 365 DAYS AFTER PUBLICATION], a description of the procedure whereby the Director will notify owners or operators of any Class I wells previously permitted for the purpose of geologic sequestration or Class V experimental technology wells no longer being used for experimental purposes that will continue injection of carbon dioxide for the purpose of GS or Class VI wells previously permitted by EPA that they must apply for a Class VI permit pursuant to requirements at §146.81(c) within one year of Class VI program	40 CFR §145.23(f)(4)			

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approval;				
A description of aquifers, or parts thereof, which the Director has identified under §144.7(b) as exempted aquifers, and a summary of supporting data. For Class VI programs only, States must incorporate information related to any EPA approved exemptions expanding the areal extent of existing aquifer exemptions for Class II enhanced oil recovery or enhanced gas recovery wells transitioning to Class VI injection for geologic sequestration pursuant to requirements at §§146.4(d) and 144.7(d), including a summary of supporting data and the specific location of the aquifer exemption expansions. Other than expansions of the areal extent of Class II enhanced oil recovery or enhanced gas recovery well aquifer exemptions for Class VI injection, new aquifer exemptions shall not be issued for Class VI wells or injection activities;	40 CFR §145.23(f)(9)			
For Class VI programs, a description of the procedure whereby the Director must notify, in writing, any States, Tribes, and Territories of any permit applications for geologic sequestration of carbon dioxide wherein the area of review crosses State, Tribal, or Territory boundaries, resulting in the need for trans-boundary coordination related to an injection operation.	40 CFR §145.23(f)(13)			
40 CFR §145.32 Procedures for revision of State programs.				

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*** All requests for expansions to the areal extent of Class II enhanced oil recovery or enhanced gas recovery aquifer exemptions for Class VI wells must be treated as substantial program revisions.	40 CFR §145.32(b)(2)			
PART 147--STATE, TRIBAL, AND EPA-ADMINISTERED UNDERGROUND INJECTION CONTROL PROGRAMS				
SUBPART A--GENERAL PROVISIONS				
40 CFR §147.1 Purpose and scope.				
Class VI well owners or operators must comply with §146.91(e) notwithstanding any State program approvals.	40 CFR §147.1(f)			

*** Indicates that additional language is provided in the Code of Federal Regulations for the original UIC Rule and its amendments. Only language related to the Class VI Rule is provided in this crosswalk.